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THE EDUCATIONAL OBJECTIVES OF THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

CHAIRMAN'S ADDRESS

WALTER T. DANNREUTHER, M.D.
NEW YORK

Twelve years ago the Section on Obstetrics and Gynecology of the American Medical Association cooperated with the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the American Gynecological Society to create and incorporate the American Board of Obstetrics and Gynecology. It therefore seems logical to assay the accomplishments of the board and discuss briefly its original objectives, which have not been modified since its organization in 1930. Each of the sponsoring societies was and still is represented by three elected members, who are also directors and examiners. There have been five changes in personnel during the past five years, all due to resignations. The large number of candidates since 1936 has made it necessary for the nine board members to enlist the services of several associate examiners for the oral and pathologic examinations. These were wisely provided for in the articles of incorporation, and thus far only those holding professorial appointments in medical schools have been invited to serve in this capacity. The members of the board believe that this arrangement has many desirable effects. It has broadened and freshened their own points of view as examiners, familiarized several of the leaders of our specialty with the intimate details of the board's procedures and decisions, and emphasized a sincere desire to insure fairness to all candidates.

It was with the intent of directing and improving, but not controlling, the practice of obstetrics and gynecology by specialists that the board was originated, and there never has been any inclination to limit in any way the professional responsibilities that any licensed practitioner may care to assume. Its primary purposes were to encourage the study, improve the practice and advance the cause of obstetrics and gynecology, to induce potential specialists to prepare themselves thoroughly, to determine the relative competence of specialists in accordance with certain minimum standards and to grant and issue certificates of special knowledge in obstetrics and gynecology to those who voluntarily comply with the board's requirements, without purporting to confer any legal qualification, license or privilege.

Certain fundamental policies were adopted in the beginning and have been continued ever since. The board has always desired to keep the application fee as low as possible without jeopardizing its finances. After nine years of operation a growing budget, in spite of strict economy, made it imperative to increase the fee for the first time. The board has expected its certified specialists to refrain from making excursions into other fields of practice, on the logical premise that the expert practice of a specialty after thorough training cannot consistently be combined with comparative mediocrity in other branches of medicine. The license to practice medicine is a legal certificate of general competence, and those who do incidental obstetrics and gynecology require no further testimony of their ability. On the other hand, when a practitioner presumes to designate himself as a specialist in a particular subdivision of medicine, his pronouncement carries with it an implication of superior training, extraordinary skill and a background of extensive clinical experience, attainments which should be regarded as qualifying him to assume the responsibility for major obstetric and gynecologic problems, as well as to serve as an adviser and consultant to those of less experience. A specialist differs from other physicians in the character of his postgraduate training and practice, not in professional ability. The board has consistently refused to lower its requirements of eligibility, so that in its certificate the public, both lay and medical, might have a reliable criterion whereby those who are really well qualified can be distinguished from pseudospecialists. The board has strictly confined its activities to its own business and has repeatedly declined to sponsor, support or engage in other enterprises, regardless of their merit.

The board's examination includes a survey of the candidate's ethics and professional career, with particular reference to his special training and postgraduate work; estimation of the extent of his clinical experience; an inquiry into his obstetric and surgical judgment as disclosed by the character of his case records and an oral quiz; a determination of his familiarity with important contributions to the literature; a test of his knowledge of the essentials of the basic sciences pertaining to the clinical aspect of obstetrics and gynecology, especially pathology, both gross and microscopic; a review of his general knowledge and utilization of modern diagnostic measures and therapeutic resources, and a summary of his capabilities and adaptability in general. The board has always arranged for the review of written papers and case records, as well as the conduct of the pathologic and oral examinations by examiners remote from

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the district in which a candidate practices, thus eliminating possible prejudice or favoritism.

Since 1930 the board has examined 1,770 applicants, of whom 1,457 passed and 313, or 17 per cent, failed. Another smaller group has never passed the written test or submitted satisfactory case histories. One hundred and eighty-nine formal applications for examination have been rejected as ineligible after a careful scrutiny by the committee on credentials. The total number of specialists certified to date, including 255 who were originally certified without examination, is 1,712. This is a fair index of the profession's appreciation of the value of certification, as applications have never been solicited.

There can be little doubt that the principles on which the board functions have promoted the unification, or at least the correlation, of obstetrics and gynecology in medical schools and hospitals during the past twelve years, so that a larger percentage of potential specialists have been exposed to fundamental training in both subjects. Many preexisting residencies have been lengthened and additional ones have been established, but the clinical material is still being wasted in some hospitals and the available opportunities are far from sufficient to supply the demand. Until the residencies are further amplified in both number and scope, it will be necessary in some instances for the board to accept postgraduate apprenticeship and clinical experience under satisfactory supervision in lieu of part of the required three years of institutional training in obstetrics and gynecology. The board's Committee on Graduate Education has done much to stimulate institutions to rectify some of these defects in our graduate educational system.

It is quite evident that most prospective applicants have become aware of the necessity for constant study and thorough preparation before presenting themselves for examination. They learn to read at home, visit other clinics and take postgraduate courses, thus forming habits which are likely to persist throughout their professional lives. The chief mistake made by those who are unsuccessful is the assumption that experienced clinicians will not be expected to know anything at all about the correlated basic sciences, or that younger men who have spent several consecutive years in institutions can entirely substitute ultrascientific knowledge for clinical judgment. It is for that reason that the oral examination includes an appraisal of the extent of a candidate's knowledge, the character of his practices and his cultural and scientific attributes. Some applicants appear so nervous that they find it impossible to express themselves despite a deliberate effort on the part of the examiners to dissipate apprehension, and a few undeserved failures have probably been due to this cause. Familiarity with the fundamentals of pelvic anatomy, physiology, biochemistry and especially pathology is an essential factor in the solution of antepartum, preoperative and postoperative problems. There is no requirement that candidates have formal graduate instruction in the basic sciences. All that is expected is a reasonable degree of knowledge of these subjects as related to the intelligent practice of obstetrics and gynecology. Conversely, scientific data cannot completely replace clinical experience in dealing with diagnostic and therapeutic problems. Hearing that the patient's temperature is 104 or the pulse 140 is quite different from telling it to some one else who must make crucial decisions. The board has recently encountered so many relatively young men who had devoted all of the next five years after the completion of a rotating internship to obstetric and gynecologic internships, residencies and fellowships, and who had never carried the responsibility for private patients of their own, that it was deemed wise to increase the required years of practice from five to seven. Without a reasonable time spent in private practice, a candidate's integrity and ability as a private practitioner cannot be determined. It does not seem unduly exacting to expect one who professes to be an expert in certain disease conditions to be familiar with the intrinsic pathologic alterations in the tissues involved; but, until the board began to function, clinical pathology was practically ignored by many of those who had the greatest opportunity to profit by it. As a result of the stressing of gross and microscopic pathology in the examinations, it is probable that the specialists certified by the American Board of Obstetrics and Gynecology know as much pathology pertaining to their specialty as any other clinical group in this country.

Sometimes a senior obstetrician or gynecologist regards the failure of one of his staff as a reflection on his clinic or as an error on the part of the board. That mistakes may have been made can be freely admitted, but every effort has been made to avoid them. In event of a failure, at least six examiners report orally on the candidate to the entire group of examiners and assistant examiners, reciting in detail the questions asked and the candidate's replies. It is therefore impossible that any one can be failed solely because of peculiar questions, a single question or a difference of opinion. Due respect is accorded each individual's methods of practice, and he may even deviate from accepted methods, provided he can justify such procedures by a reasonable argument. After a general consideration of all the details of the examination, including a review of each candidate's records, capability and general adaptability, the applicants are passed or failed solely by a vote of the entire board. Assistant examiners express their opinions freely but have no vote. As a matter of fact, relatively few candidates who have failed have complained of injustice or resented the board's action as unfair, and the majority have apparently devoted a year or two to improving their qualifications and then passed a reexamination without difficulty. Most of the critical comments concerning those who have failed are made by some one other than the candidates themselves.

Whereas each specialty board has some problems peculiar to itself, there are certain other questions arising from time to time which are more or less common to all. So in 1933 the Advisory Board for Medical Specialties was organized to provide a forum for the discussion of matters of mutual interest and the coordination of certain activities. Contrary to the impression prevailing in some quarters, the Advisory Board has no jurisdictional control over the certifying boards, most of which, like the American Board of Obstetrics and Gynecology, are legally incorporated. The boards which insist on restriction of practice to a specialty and otherwise require evidence of superior qualifications have occasionally been criticized for adopting standards which are regarded by some as unduly exacting. If requirements are not maintained at a high level, the operations of the boards would be merely intellectual exercise and certification meaningless. At any rate, the fact that approximately seventeen hundred obstetricians and gynecologists have not found it impossible to comply with the regulations of your board is testimony that its standards are not unreasonable. It has also been intimated that the boards may degenerate into

autocratic guilds, because many institutions attach considerable importance to certification. It seems quite logical that hospitals, medical schools and special societies should evaluate for themselves the significance of certification and utilize it as they choose. Whatever formal action has been taken by such groups has been entirely spontaneous and has originated outside the boards. In fact, it seems impossible to conceive of how dogmatic decisions by the boards could be enforced on others, even if they had such an intent, which they have not.

Pressure is still being exerted to influence the board to relax its insistence on absolute limitations of practice to obstetrics and gynecology, particularly for the benefit of a minority of semispecialists in small communities who find it impossible to derive sufficient remuneration from strict specialization. If a field of practice is so small that this contention is valid, the practitioner of obstetrics and gynecology does not need a certificate of identification, for the lay inhabitants and other physicians in the vicinity are well aware of the relative qualifications of those who are particularly interested in one of the specialties and will attend to the proper distribution of patients. Any one especially competent in such an environment is soon appreciated and has little competition. If the time should ever come when for other reasons admission to the examinations would depend solely on excellence of training and competence, regardless of strict limitation of practice, it is certain that the graduate educational qualifications of those candidates would be even more closely scrutinized and the requirements of the board more rigidly enforced than they are at the present time. Such a radical alteration in the board's policy could be anticipated only if it should be conclusively demonstrated that the welfare of the smaller communities demanded it. In larger cities it is much more difficult to determine the true qualifications of those who claim to be specialists, and, while lack of certification by no means should be interpreted as evidence of nonqualification, certification does carry with it a reasonable assurance of competence as a specialist. The medical profession now has available for reference the Directory of Medical Specialists, which includes the biographic data of approximately eighteen thousand certified specialists in all branches of medicine.

The primary objectives of all the national specialty examining boards are not legislative or restrictive but educational and constructive. I believe that it may fairly be said that the constructive influence of the Board of Obstetrics and Gynecology has been manifested by the recent tendency of more medical schools and hospitals to unify, or at least correlate, obstetrics and gynecology; by the realization of aspirants for certification that they must prepare themselves thoroughly for the practice of the specialty; by fostering the establishment of more and better residencies; by encouraging the compilation of better obstetric and gynecological records; by expecting recent ex-residents to acquire sufficient clinical experience before seeking recognition as specialists, and by the stimulation of clinicians to familiarize themselves with obstetric and gynecologic pathology. Nothing but the merit of its objectives and its successful accomplishments have been responsible for the momentum developed by your board, and nothing but these can perpetuate and insure its future existence.

580 Park Avenue.

EXPERIMENTAL FIBROIDS AND THE ANTIFIBROMATOGENIC ACTION OF STEROID HORMONES

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Not being a gynecologist or an obstetrician, I feel obliged to offer my apologies for presenting a paper on experimental fibroids and their prevention in this section inspired by practical aims which might be of use to suffering womanhood. Let me express my apology in the words of a great American. Almost one hundred and fifty years ago, a few days before the final treaty of independence with England was signed, Franklin saw in Paris the first balloon ascension. The spectators argued about the utility of the

Fig. 1.—Uterine tumors induced in the guinea pig by estrogens: *A*, enormous subserous and parametric tumoral masses on the dorsal face of the uterus; fifty-one injections of 80 mg. of estradiol monobenzoate in the course of four months. *B*, pedunuclated tumor and "apical" tumor of the mesosalpinx; same treatment. *C*, subserous tumors induced by subcutaneously implanted pellet of estrone. Absorption was of 11 mg. daily in the course of four months.

experiment. What good, some skeptic asked, could a balloon be? What good, Franklin replied, was a newborn baby?

Obstetricians and gynecologists will be the first to appreciate or not the claims of the scientific newborn babies, which experimental fibroids and antifibromatogenic steroids are.

Subserous uterine fibroids were first elicited in the United States by W. O. Nelson in a number of guinea pigs subjected to prolonged treatment with estrogens.

Read before the Section on Obstetrics and Gynecology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1942.

This work has been aided by the Jane Coffin Childs Memorial Fund for Medical Research, the Rockefeller Foundation and others, and has been realized in 1937 to 1942, in collaboration with Drs. R. Iglesias, L. Vargas, O. Koref, P. Bellolio, R. Murillo, F. Rodriguez, A. Jedlicky, J. Chaume, I. Szabó, E. Egaña, S. Bruzzone, J. Palma, R. Thibaut, C. Nuñez, O. Vera, J. Zañartu, S. González, R. Carrasco, A. Riesco and others. For references see Cold Spring Harber Symposia on Quantitative Biology **10,** 1942, and Medicina (Buenos Aires) **2,** 1942.

Independently I made a similar statement in Chile in collaboration with my student Iglesias. We were able to establish two new facts of considerable interest: First, not only uterine but also extragenital subserous fibroids in the abdominal cavity can be elicited by estrogens—fibroids present themselves in the mesentery,

Fig. 2.—Subserous, parametric and apical tumors of the uterus. Tumors at the hilus and on the surface of the spleen, and of the epiploon. Induced by a subcutaneously implanted pellet of estradiol. Absorption was of 15 mg. daily in the course of eighty days.

the spleen, the pancreas, the abdominal wall and so on. And, second, under certain quantitative and timing conditions of treatment with estrogens a female guinea pig only rarely escapes production of abdominal fibroids.

The statement that abdominal fibroids can be elicited with such certainty gave us the opportunity to make a detailed study of the external and intrinsic factors responsible for this kind of experimental tumors. Extragenital abdominal fibroids were elicited without uterine fibroids being present, and they may be elicited also in the male though only rarely, there being a very pronounced sex difference as to the degree of the tumoral reaction. All estrogens, natural and artificial, free and esterified, were shown to be tumorigenic. The quantities necessary to elicit fibroids were with esterified estrogens very small; in experiments with subcutaneous injections the 17-caprylic ester of estradiol prepared by Dr. C. Miescher in Basle proved to be the most powerful fibromatogenic substance. It may be assumed that the greater activity of this ester is due to its prolonged action or to greater facility offered by the ester to maintain a stable fibromatogenic threshold of blood estrogen. I stated that continuous action is an essential factor of tumorigenesis elicited by estrogens. When each week of injections was followed by two weeks free of treatment with a powerful tumorigenic ester we were able to prolong the experiment for an entire year without fibroids being produced (Lipschütz, Rodríguez and Vargas). On the other hand, minute quantities of free estradiol quite insufficient to produce fibroids when given thrice weekly by subcutaneous injections proved to be highly active when absorbed by a steady flow from a pellet subcutaneously implanted by the method of Deanesly and Parkes.

The organism disposes seemingly by different means of autodefense of the toxic tumorigenic action of the estrogenic hormone. There is first the sexual rhythm or the alternation of high and low level phases of blood estrogen by which discontinuity of estrogenic action is assured. Transformation of ovarian estrogens as estradiol and estrone into urinary estrogens seems to serve the same purpose: we found estriol and equilenin to be less fibromatogenic than estradiol and estrone even when a steady flow from a subcutaneous pellet is established. Fibromatogenesis was less frequent and of a minor degree when the estrogenic pellet was implanted not beneath the skin but into the liver. But, as shall be shown later, it is very likely that the means of autodefense are not exhausted by inactivation or elimination of estrogens.

As early as 1924 I admitted that hormonal factors inhibiting the action of the estrogenic hormone on the effector tissue may be in play: testicular tissue with fully developed seminiferous tubules and interstitial cells may lose its stimulative action on the development of the penis, prostate and seminal vesicles of the guinea pig when an ovary is engrafted which enters into

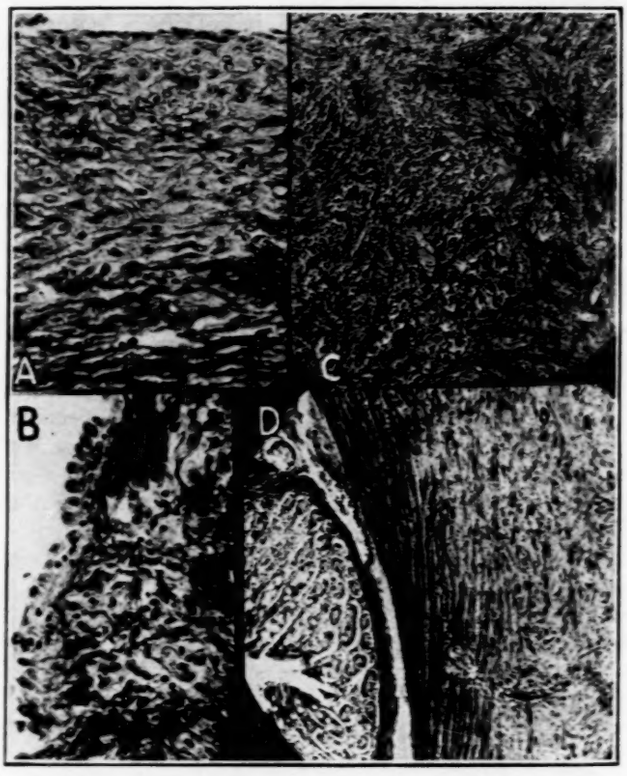

Fig. 3.—Microscopic structure of experimental fibroids induced by estrogens. *A*, spindle shaped cells at the periphery, and collagen fibers in the center. *B*, hypertrophied mesothelium and great wealth of collagen fibers between spindle shaped cells. *C*, infiltration and destruction of the pancreas by collagenous tissue of the fibroid. *D*, infiltration of the muscular wall of the rectum by a fibroid.

follicular development and prolonged endocrine activity. The reality of this kind of antagonism between steroid hormones has been fully corroborated in recent years by many workers. The estrous vaginal reaction elicited in

castrated mice or rats by estrogens is inhibited by the simultaneous administration of progesterone or testosterone propionate (W. M. Allen and Meyer, Courrier); development of the comb in the cockerel elicited by local application of testosterone is inhibited by simultaneous application of estradiol (Morató); increase of the percentage of chromophobe cells in the anterior lobe of the hypophysis elicited by the injection of estrogens is inhibited by the simultaneous administration of androgens (J. M. Wolfe and others). So one may assume that progesterone rhythmically produced in the body serves not only for synergetic action with the estrogen on the uterine mucosa but also for antagonistic action.

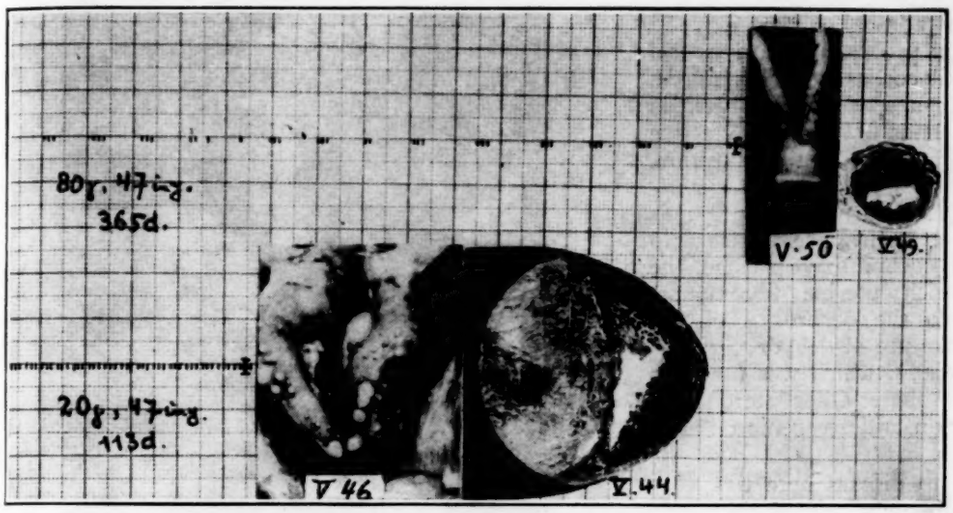

Fig. 4.—Continuous and intermittent ("discontinuous") treatment with estrogens: At the bottom: Three injections weekly; total of fory-seven injections of 20 mg. of estradiol monobenzoate in the course of one hundred and thirteen days. Great increase in size of the uterus, and large uterine fibroids (*V.* 46). Uterus compressed by large parametric fibroid; proliferation of the endometrium (*V.* 44). At the top: Each week of injection was followed by two weeks and a half free of injections; total of forty-seven injections of 80 mg. of estradiol monobenzoate in the course of three hundred and sixty-five days. Uterus of normal shape (though somewhat increased) and almost normal microscopic structure. Comparative figures at the same scale.

I thought that use may be made of these antagonistic or antiestrogenic actions of progesterone and testosterone in guinea pigs with experimental fibroids elicited by estrogens. Will abdominal fibroids be prevented by the simultaneous administration of the steroid hormones mentioned?

We started about three years ago with experiments in which simultaneously with oil solutions of fibromatogenic quantities of estradiol benzoate a multiple of progesterone or testosterone propionate was given. Progesterone was used in our first experiments at a ratio of one hundred and fifty as compared with estradiol because in former work of Courrier the quantities of progesterone needed to prevent estrus in castrated rats injected with estrone were two hundred to four hundred times larger than the quantities of the latter. Uterine fibroids were prevented in all our experiments; the extragenital fibrous reaction was but slight, only small nodules being present on the surface of the spleen, stomach and surrounding parts of the abdominal wall, as may be observed in experiments with small quantities of the fibromatogenic estradiol. As to testosterone, we were equally successful by injecting quantities of testosterone fifty times greater than those of estradiol (Lipschütz, Vargas and others).

The antifibromatogenic action of the two steroids mentioned was concomitant with other preventive actions. The vagina instead of being permanently open, as is the case when a continuous treatment with estrogens is given, closed again in most of these experiments. But even when it remained open, genital bleeding, a common phenomenon in guinea pigs subjected to prolonged treatment with estrogens, did not appear. Increase of uterine weight and endometrial proliferation were diminished. These results with prevention of uterine and other fibroids acquired a more favorable quantitative aspect in experiments in which subcutaneously implanted pellets of steroid hormones were made use of. Weighed tablets of estradiol and of progesterone were implanted simultaneously in castrated guinea pigs; two months later the tablets were recovered and the quantity of the absorbed steroids was established by weighing again the dried tablet. We were rather surprised when the prevention of fibroids was effected with unexpectedly small quantities of progesterone. Instead of the ratio of one hundred and fifty as in our first experiments experimental fibroids were absent at a ratio of one to one with estradiol.

On account of the great similarity between the chemical structure of progesterone and desoxycorticosterone, I had to ask myself whether the latter also may have a preventive action. This synthetic adrenal cortical steroid used as the acetate revealed itself in our work as a most powerful antifibromatogenic steroid. We have used this steroid also for studying more closely the quantitative aspects of antifibromatogenic action. In our subsequent work we found that a certain threshold quantity of the antifibromatogenic steroid must be absorbed daily from the subcutaneous pellet so as to prevent the fibromatogenic action of the estrogen (Lipschütz, Luco and Zañartu). This antifibromatogenic threshold was smaller with progesterone than with other steroids. Desoxycorticosterone was nearest to progesterone as to its activity, whereas testosterone appeared to be less active.

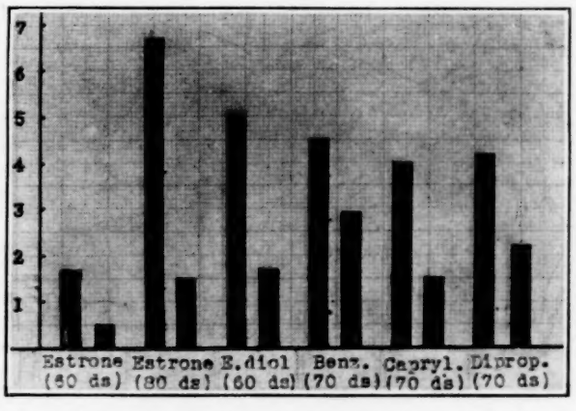

Fig. 5.—Comparative results with subcutaneously and intrahepatically implanted pellets of different estrogens. Height of columns indicates degree of the tumoral reaction. Absorption of estrogen was the same with the two subcutaneous and intrahepatic pellets. The tumoral reaction was considerably less with intrahepatic pellets.

The antifibromatogenic activity of desoxycorticosterone deserves special interest for the following reason: An antiestrogenic action of the adrenal cortex has been suggested already by former work of Zuckerman (1937); Del Castillo and Di Paola (1939) gave experimental evidence of such an action in the rat. Our findings with desoxycorticosterone show that this antiestrogenic action of the adrenal cortex may be attributed not only to cortical progesterone or cortical androgens but also to a specific cortical steroid. Indeed, desoxycorticosterone occupies a special place between cortical hormones in that it seems to be the only active cortical steroid without oxygen in the 11-position. Will other cortical hormones be able to prevent experimental fibroids as well as desoxycorticosterone? This is a question of greatest interest because it refers to the role which the adrenal cortex may play in the endocrine imbalance to which uterine fibromyoma probably is due. Thanks to the generosity of Dr. Kendall, we were able to make use of dehydrocorticosterone (substance A of Kendall), which was found to be antifibromatogenic. Are there other steroids in the body which might exert an antiestrogenic or antifibromatogenic activity?

Time will not permit me to discuss here this very relevant question. It is intimately related with two other ones: 1. How are differences of antifibromatogenic activity of the chemically related steroids dependent on differences of their chemical structure? and 2. Is antifibromatogenic activity of steroids coincident with their antiestrogenic, progestational, cortical and masculinizing actions? On the basis of our comparative results with more than a dozen naturally occurring or naturally not occurring steroids I should wish to make only the following statements: Antifibromatogenic activity seems to be the expression of the antiestrogenic faculty of certain steroids and is not necessarily coincident with their progestational, cortical and estrogenic activity. This is a very important feature of the problem.

I have as yet spoken only of the prevention of fibroids. Will the same steroids also cause regression of existing

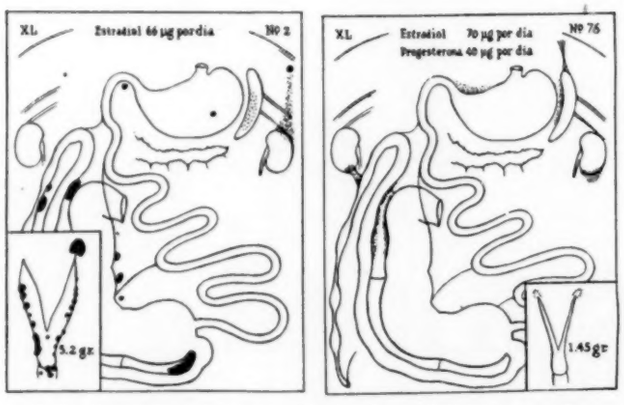

Fig. 6.—Diagrams showing the antifibromatogenic action of progesterone in the guinea pig. At the left: Uterine and extragenital fibroids induced by a subcutaneous pellet of estradiol; absorption of estradiol was 66 mg. daily in the course of two months. At the right: Prevention of uterine growth and of fibroids by the simultaneous implantation of a pellet of progesterone; absorption of estradiol was 70 mg. daily, and that of progesterone 40 mg. daily, in the course of two months.

uterine and other fibroids? This is very likely. Experimental fibroids begin to regress when injections of estrogens are suspended, and injection of an antifibromatogenic steroid is equivalent to suppression of estrogenic activity.

Can our findings be applied in the treatment of fibromyoma in the woman? The question may seem pretentious, since testosterone propionate was already used in the treatment of uterine fibroids by different European and American gynecologists before there was any evidence of experimental fibroids or of fibromatogenic and

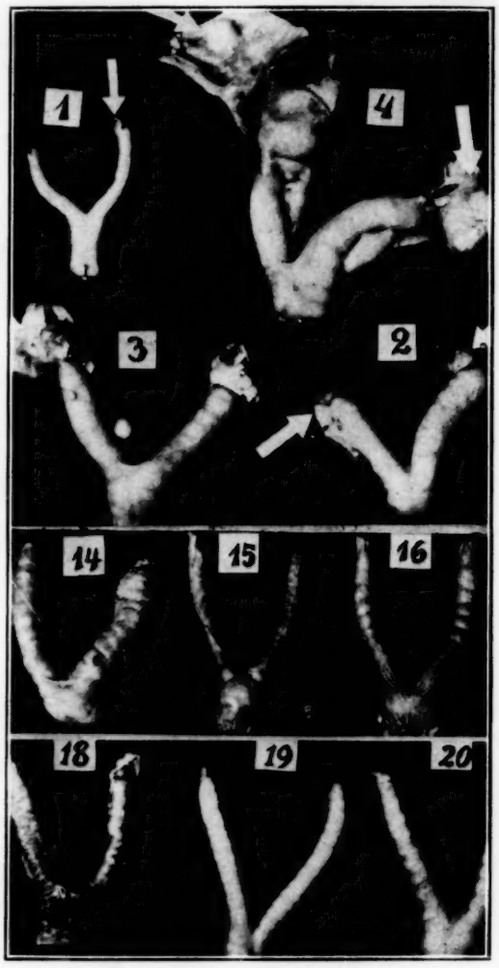

Fig. 7.—Antifibromatogenic action of cortical steroids: 1 to 4, uteri of animals with subcutaneously implanted pellets of estradiol; 14 to 16, uteri of animals with pellets both of estradiol and of desoxycorticosterone acetate; 10 to 20, uteri of animals with pellets of both estradiol and dehydrocorticosterone (Kendall).

antifibromatogenic steroids. On the other hand, experimental fibroids elicited by estrogens are structurally different from the uterine fibroid or fibromyoma in women. Nevertheless the question of a practical application of our findings with antifibromatogenic steroids deserves interest, as shown by the following: Fibromyoma in women, like the experimental fibroid of the guinea pig, regresses when production of estrogen is suspended or diminished as is the case in the menopause or after castration or ovarian irradiation. Thus it has to be supposed that antifibromatogenic steroids which are antiestrogenic, i. e. are able to prevent the action of estrogens, will reveal their action also in the woman with fibromyoma. Injections of testosterone propionate have been administered for the treatment of fibromyoma with variable clinical success. In accord with our results one must assume that, with subcutaneous tablets or pellets of antifibromatogenic steroids, prospects may change greatly. The subcutaneous pellet assures a continuous flow of the antifibromatogenic steroid. The continuous flow of the estrogen is, as shown by our work, a fundamental condition of its

fibromatogenic action, and a thoroughful regulation of the flow of the antagonistic steroid likewise seems to be essential for its antifibromatogenic action.

When discussing practical application of our experimental work with steroid hormones, one must not forget that the tumorigenic and antitumorigenic action of steroid hormones varies greatly according to the species. We failed to induce abdominal fibroids in the rat even with quantities of estradiol many times those necessary in the guinea pig (Lipschütz and Egaña and others); on the other hand, hypophysial tumors as elicited by estrogens in the rat cannot be elicited in the guinea pig. These examples can be easily multiplied. On the other hand, testosterone propionate, which is considered antagonistic against atypical proliferation of the mammary gland in the woman, is in the guinea pig void of any inhibitory action on the mammary gland. I found metaplastic changes in the mammary gland more frequent with the simultaneous administration of estradiol and testosterone than with estradiol alone.

It is evident from the foregoing statements that a discussion on the most efficient fibromatogenic steroids for clinical trials cannot be given by the experimentalist. Progesterone is in the guinea pig the most potent antifibromatogenic steroid. Will it be so also in the woman? And will concomitant progestational action not be harmful? Will desoxycorticosterone be more desirable than progesterone? It is for the gynecologist to decide all these questions.

PANCREATIC DISEASE

THE FRANK BILLINGS LECTURE

JOSEPH H. PRATT, M.D.
BOSTON

The time will soon come when the one who gives the Billings lecture, as well as his audience, will belong to a generation that never knew Frank Billings. Those of us who did have the privilege of his friendship and who are indebted to him for help and leadership delight to honor his memory. Frank Billings can be characterized by a single word, "big." There was nothing small about him. He was a big man in body, in heart and in intellect. He had a big range of interests, civic as well as medical, and to him the American Medical Association owes much.

To another medical worthy, Reginald H. Fitz, contemporary and friend of Frank Billings, I owe an interest in pancreatic disease that began nearly forty years ago and has continued ever since. Dr. Fitz had been asked to contribute a paper on the symptomatology and diagnosis of pancreatic disease at the session of the Congress of American Physicians and Surgeons to be held in Washington in May 1903. Many months before the meeting he began to gather material for this paper, and he asked me to aid him. I have never seen any one make a more careful search of the literature or a more critical study of medical papers. He himself read and abstracted all the articles he had asked me to read and many others in addition. The paper that he wrote was the best and most informative on the subject of chronic pancreatic disease that had appeared and the equal in its way of his better known writings on acute pancreatic disease published in 1889. The 1903 paper, buried in the Transactions of the Congress, never directed or influenced the advance of knowledge as it would have done if it had received wider circulation.

Dr. Fitz [1] collected all the cases he could find in which chemical analyses of the fecal fats had been made, beginning with those of Friedrich Müller,[2] who was the first to make chemical analyses in obstructive jaundice and in pancreatic disease. Fitz found support for Müller's view that in pancreatic disease there is less split fat in the feces, as in 9 out of the total of 11 cases in the literature the split fat was greatly diminished and consequently the neutral fat was increased.

In the opening paragraph of his paper Fitz quoted Friedreich's opinion [3] that the presence of undigested, striated muscle fibers in the feces "is worthy of every consideration and may perhaps prove of diagnostic value." This statement was apparently based on a single but striking case reported by Fles [4] in which the feces contained much fat and in addition large numbers of undigested striated muscle fibers. When the patient was fed daily a calf's raw pancreas, the fat and muscle fibers disappeared from the feces, only to return again when the pancreas was omitted from the diet. The autopsy showed the pancreas reduced to a fibrous framework with only traces of gland substance. No duct could be found. Fitz found only 7 other cases of pancreatic disease with autopsy reports in which the presence or absence of muscle fibers and fat in the stools was noted. Steatorrhea was absent in 3, but creatorrhea was present in all 8. He concluded his paper by stating that "with the increase of chemical laboratories in our general hospitals, and with the more frequent addition of biological chemists to the force of pathologists, . . . new lines of research are sure to be planned."

Dr. Fitz was eager to do his part in having these chemical studies continued, and he obtained a grant of money that enabled me to make a beginning. During the following year 1 case of obstruction of the pancreatic ducts, verified by autopsy, was studied in his service at the Massachusetts General Hospital with the aid of chemical procedures. The patient was a middle aged woman who had had a painless jaundice of six months' duration. She had lost nearly 50 pounds (23 Kg.). The stools were silvery gray and unformed and contained many muscle fibers with sharp edges and striations preserved and much fat in the form of flakes and crystals. Feces passed on Jan. 28, 1904 were dried and analyzed. They contained 54 per cent of fat, which was greater than that in any case in the literature collected by Fitz, his highest figure being 47 per cent, which was reported by Northrup and Herter [5] in 1899 in the first study of this kind made in America. An analysis of a second stool passed on February 22, nearly a month later, yielded 63 per cent of fat, of which 29 per cent was neutral fat, 63 per cent fatty acids and only 8 per cent soaps. The second analysis showing an almost complete absence of soaps

Read before the Section on Practice of Medicine at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1942.

1. Fitz, R. H.: The Symptomatology and Diagnosis of Diseases of the Pancreas, Tr. Congress of American Physicians and Surgeons, New Haven **6**: 36, 1903.
2. Müller, Friedrich: Untersuchungen über Ikterus, Ztschr. f. Med. **12**: 45, 1887.
3. Friedreich, Nikolas: Diseases of the Pancreas, in von Ziemssen's Cyclopedia of the Practice of Medicine (American edition), New York **8**: 573, 1878.
4. Fles, J. A.: Ein Fall von Diabetes Mellitus mit Atrophie des Leber und des Pankreas, Arch. f. d. holländ Beiträge zur Natur und Heilkunde **3**: 187, 1864; cited by Friedreich.[3]
5. Northrup, W. P., and Herter, C. A.: Carcinoma of the Pancreas, Am. J. M. Sc. **117**: 131, 1899.

supported the view advanced by Zoja[6] that a low percentage of soaps is a valuable diagnostic sign of absence of pancreatic digestion. At autopsy there was a cancer of the pancreas, which appeared to have originated in the ampulla of Vater. The pancreatic ducts were occluded. I found later that a low percentage of soaps was not the rule in obstruction of the pancreatic ducts, as it did not occur in 3 of 6 cases.[7]

It is not the disturbance of fat digestion and absorption that is of greatest importance in the diagnosis of pancreatic insufficiency but the disturbance of protein digestion. After the study of a series of cases, I am convinced that the presence of many undigested muscle fibers in the feces when the patient is on a diet rich in meat is the simplest test of the existence of greatly diminished or absent pancreatic external secretion.

With the opening of the new buildings of the Harvard Medical School in 1906, adequate accommodations for the care of animals enabled me to carry on experimental studies on dogs over long periods of time. I decided to study the effect in dogs of excluding all the pancreatic juice from the intestine. It was a known fact that when the pancreas was extirpated there was a great disturbance in the digestion and absorption of protein and fat. A number of able experimenters had made studies of the absorption of nitrogen and fat after tying the pancreatic ducts in the dog and found it to be normal. When these animals were examined after death, it was claimed that no communication existed between the pancreatic ducts and the duodenum. Hence it was concluded that the external pancreatic secretion was not necessary for normal digestion and absorption to occur. One investigator, Otto Hess,[8] however, had presented evidence that when all the pancreatic juice is excluded from the intestine severe disturbance of digestion and atrophy of the pancreas occur, but his work, published in an obscure journal, was disregarded.

The first 2 dogs that I studied threw light on the problem. The results on the first dog seemed to confirm the view generally held that the pancreatic juice was not necessary to good food absorption. The main pancreatic duct was cut between double ligatures, and all structures resembling small ducts were also tied. The dog was kept under observation over four months. There was an increase of weight of nearly a kilogram during the last month. The stools were normal in appearance and, on microscopic examination, no fat or muscle fibers were seen. In an absorption experiment after the ducts were tied 83 per cent of the fat fed was utilized, which is normal. The dog was killed. The pancreas was not atrophied and was of normal consistency. We were fortunate enough to discover on careful dissection a small sinus passing from the main duct above the ligated portion into the duodenum, which was conclusive evidence that pancreatic juice was still entering the intestine.

The success in the second experiment was due to the operative skill of Dr. F. T. Murphy. On Jan. 13, 1908 the pancreas was dissected away from the duodenum and the omentum was drawn down between the two structures and nearly encircled the duodenum. After recovery from the operation the dog began to pass bulky stools. These contained great numbers of muscle fibers with striations well preserved. In an absorption experiment lasting six days, from January 29 to February 3, the weight of the dried feces was 438 Gm., or 73 Gm. a day. This was in striking contrast to the results obtained in dog 1 with pancreatic juice entering the intestine through a postoperative sinus. The dried feces in an experiment of nine days' duration on this dog weighed only 57 Gm., or 6.3 Gm. daily, which was less than 10 per cent of the weight of the feces passed by the dog deprived of pancreatic digestion.

In this experiment on dog 2 with the pancreatic juice excluded from the intestine, only 11 per cent of the fat of the food was absorbed and only 22 per cent of the nitrogen. In February 1908 the beneficial effect of a pancreatic ferment in increasing absorption of food was first demonstrated. In a six day feeding experiment 1.6 Gm. of pankreon was added to the food daily. The weight of the dried feces was reduced from 438 to 238 Gm. on the same diet. Forty-nine per cent of the fat and 62 per cent of the nitrogen were absorbed.

In order to appreciate the great reduction in the size of the pancreas produced by permanently occluding the pancreatic ducts, some normal measurements will be given. The portion of a dog's pancreas that is attached to the duodenum is termed by Pflüger the corpus pancreatis. This was found by us in an unselected, medium sized dog to be 7 cm. long and 3 cm. wide. From the upper part of this extends the processus lienalis, which in this dog control was 10.3 cm. long and 2.75 cm. wide. To the lower end of the corpus is attached the processus uncinatus, which is freely movable, being united only to the corpus. This measured 8.5 by 2.5 cm. The total length of this normal pancreas was 26 cm. Our first dog, which showed evidence of great disturbance in absorption of fat and protein, was killed on March 17, 1908, two months after the pancreas was separated from the duodenum. At autopsy a small, shriveled, very firm, finely nodular to coarsely granular mass was seen occupying the position of the pancreas. It was grayish, with fine reddish mottling. The processus lienalis was 2.5 cm. long, 0.5 to 1 cm. wide and 0.3 cm. thick. On cross section the main duct was present, being from 1 to 1.5 mm. in diameter; colored fluid injected into this toward the duodenum did not enter the latter but led to a firm mass of tissue 3 by 2 by 1.5 cm. embedded in the adhesions about the duodenum, which was apparently the remains of the corpus pancreatis and processus uncinatus. Microscopically, small areas of pancreatic cells were found surrounded by dense connective tissue. Serial sections failed to show islands of Langerhans.

Experiments on 3 other dogs confirmed the results already obtained, as in every instance in which pancreatic secretion was excluded from the intestine there was diminution in the absorption of nitrogen and fat and great atrophy and sclerosis of the pancreas.

In the spring of 1909 Lamson, Marks and I[9] presented our data at the meeting of the Association of American Physicians. The audience was not convinced. Dr. Meltzer[10] said in the discussion of the paper that he regretted the fact that our findings varied from those of other observers. He concluded his remarks with the statement "The pancreas and the stomach both, as I pointed out some time ago, contain a good many factors of safety and by the removal of

6. Zoja: Note cliniche sull'assobrimento del grasso, Morgani, 1899; referat im Zentralbl. f. inn. Med. **20**: 1261 (Dec. 16) 1899.

7. Pratt, J. H.: The Functional Diagnosis of Pancreatic Disease, Am. J. M. Sc. **143**: 313 (March) 1912.

8. Hess, Otto: Experimentelle Beiträge zur Anatomie und Pathologie des Pancreas, Med.-Naturwissensch. Arch. **1**: 161, 1908.

9. Pratt, J. H.; Lamson, P. D., and Marks, H. K.: The Effect of Excluding Pancreatic Juice from the Intestine, Tr. A. Am. Physicians **24**: 266, 1909.

10. Meltzer, S. J., in discussion on Pratt, Lamson and Marks,[9] Tr. A. Am. Physicians **24**: 287, 1909.

one part, the other part is sufficient to take up the work of the other." Our results gained acceptance slowly. Heiberg [11] of Copenhagen in 1914, five years after our paper was published, and Adolf Schmidt [12] of Halle, Germany, a year later, were the first to state that the evidence we presented was conclusive, and Brugsch [13] was the first to confirm our work. Both of the last two authorities had previously expressed the view in their writings that the pancreatic juice was not essential to normal digestion.

Since the presentation of that paper, studies have been continued on more than 20 dogs in which the external secretion of the pancreas was excluded from the intestine. The results then stated have been amply confirmed. When the dogs were given a standard diet rich in carbohydrates and containing milk fat and vitamins, the absorption of nitrogen and fat was better than when they were given excessive amounts of food and fat in the form of lard. Absorption depended much on the general condition of the animal. Some of the dogs died of inanition; others were kept alive only by feeding raw pancreas. One dog, Zep, lived for more than thirty-four months after being deprived of pancreatic digestion by having the pancreas separated from the duodenum. The operation was performed by Dr. Murphy on Nov. 19, 1908. The dog's initial weight fell to 4,400 Gm. by December 28, and then, unlike that of most of the other dogs without pancreatic secretion, it slowly rose, reaching 7,000 Gm. in June 1909, but slowly dropped the following months, reaching 4,700 Gm. on Feb. 1, 1911 (chart 1). At this time the feeding of raw sheep's pancreas was begun. Three pancreases were given daily. The dog's weight increased to 6,900 Gm. by March 15, a gain of over 2,000 Gm. in five weeks. This was the first dog in which gain in weight and better absorption of protein and fat by the feeding of raw pancreas were demonstrated. The absorption of nitrogen rose to 83 and of fat to 85 per cent. During this four day experiment there was a positive balance of 7.2 Gm. of nitrogen.

It was thought possible that in time gastric and intestinal enzymes might compensate for the loss of the pancreatic secretion, but this was not the case. The last experiment made on Zep, two and a half years after the first, showed no improvement in absorption. In nine experiments, the last five of which were unreported until now (recorded in the accompanying table), the absorption of nitrogen ranged from 32 to 83 per cent and of fat from 9 to 88 per cent. The highest percentage of fat absorbed was on a milk diet. This confirmed Abelmann's [14] observation made many years ago that the emulsified fat of milk is better absorbed than any other form of fat by depancreatized dogs. As milk fat is well absorbed, it might be thought that the dog would gain weight on a milk diet, but instead it resulted in the greatest loss. During a period of six days during which 3,780 cc. of milk was given, the loss in weight was 200 Gm. It was thought that if the amount of milk was increased this loss would be reduced or a gain in weight would result. But when the amount of milk was nearly doubled the loss was even greater, amounting to 300 Gm.

The calories given daily ranged from 395 to 3,650. In nearly all the experiments the dog lost weight. It is evident from an inspection of the table that the dog's ability to digest and absorb nitrogen and fat varied from time to time. This point was confirmed and emphasized by Handelsman, Golden and Pratt [15] in studies made later on a series of dogs. No diet was found which was regularly well absorbed.

Record of Dog Zep

Experiment Number	Date	Weight, in Grams	Total Food During Experiment	Calories Per Day	Calories Per Kilogram per Day	Absorption, in per Cent N	Absorption, in per Cent Fats
1	Nov. 27-30, 1908 (4 days)	Nov. 27, 5,680 Nov. 30, 5,230	500 Gm. chopped meat, 100 Gm. bone ash, 140 Gm. cracker meal and 60 Gm. lard	607	107	32	31
2	Feb. 2-5, 1909 (4 days)	Feb. 2, 5,450 Feb. 6, 5,570	1,706 Gm. chopped meat, 478 Gm. cracker meal, 341 Gm. bone ash and 80 Gm. lard	1,616	297	62	9
3	April 4-7, 1909 (4 days)	April 4, 6,250 April 8, 6,250	1,000 Gm. chopped meat, 280 Gm. cracker meal, 200 Gm. bone ash, and 80 Gm. lard	1,124	180	42	20
4	April 12-15, 1909 (4 days)	April 12, 6,250 April 16, 6,250	Same plus 10 capsules of holadin (a pancreatic preparation), daily	1,124	180	56	44
5	Oct. 12-15, 1909 (4 days)	Oct. 12, 6,450 Oct. 16, 6,530	4,000 Gm. beef heart, 1,200 Gm. cracker meal, 600 Gm. lard and 1,050 Gm. bone ash	5,210	808	43	39
6	Dec. 1-5, 1909 (5 days)	Dec. 1, 6,300 Dec. 6, 6,100	3,780 cc. milk	529	84	62	87
7	Dec. 7-12, 1909 (6 days)	Dec. 6, 6,100 Dec. 13, 5,800	6,260 cc. milk	730	116	55	88
8	Feb. 8-11, 1910 (4 days)	Feb. 7, 5,060 Feb. 14, 5,300	1,000 Gm. beef heart, 280 Gm. cracker meal, 200 Gm. bone ash, 80 Gm. lard and 200 Gm. sheep's pancreas	1,124	222	83	85
9	May 24-26, 1911 (3 days)	May 23, 7,330 June 1, 7,190	3,000 Gm. meat	2,600	363	44	22

When given a large amount of food, the dog had many stools daily and they were of large size. In one experiment of four days' duration (experiment 5) the dried stools weighed 2,700 Gm. In the moist state they would have weighed two to three times as much. Hence the dog weighing only 6,500 Gm. passed feces in four days nearly equal to its weight. In none of the dogs in which the pancreatic juice was completely excluded from the intestine did fatty degeneration of the liver occur. As is well known, extensive fatty degeneration of the liver does frequently take place in depancreatized dogs. In our dogs rapid and pronounced atrophy of the pancreas occurred. It seems logical to conclude that the sclerotic pancreas in which both the acini and islands of Langerhans are largely destroyed is able in some way to prevent the development of a fatty liver. That these dogs did not develop diabetes is evidence that islet cells are still present and functioning. That fatty degeneration of the liver did

11. Heiberg, K. A.: Die Krankheiten des Pankreas, Wiesbaden, 1914, p. 49.
12. Schmidt, Adolf: Erkrankungen des Pankreas, in Kraus-Brugsch: Spezielle Pathologie und Therapie **6:** 11, 1915.
13. Brugsch, T.: Aeussere Pankreasfunktion und Pankreasdiagnostik, Ztschr. f. exper. Path. u. Therap. **20:** 473, 1919.
14. Abelmann, M.: Ueber die Ausnutzung der Nahrungstoffe nach Pankreasextirpation mit besonderer Berücksichtigung der Lehre von der Fettresorption, Inaug. Diss. Dorpat, 1890.
15. Handelsman, M. B.; Golden, L. A., and Pratt, J. H.: The Effect of Variations in the Diet on the Absorption of Food in the Absence of Pancreatic Digestion, J. Nutrition **8:** 479 (Oct.) 1934.

not occur supports Dragstedt's work [16] that the pancreas produces another internal secretion in addition to insulin, which he has termed lipocaic.

Pancreatic feeding finally failed to prevent loss of weight and the dog died of inanition, weighing only 3,980 Gm. at the time of death. The body of the pancreas was found at autopsy to be converted into a small,

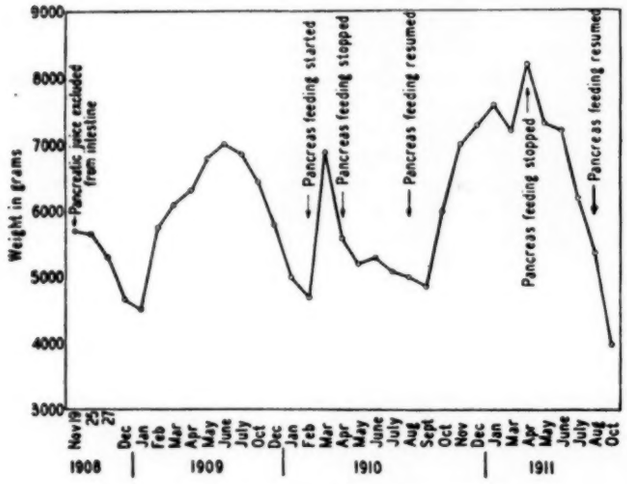

Chart 1.—Zep's weight during course of experiments.

firm, elongated mass looking like fibrous tissue. It measured only 2 cm. in length and 8 to 10 mm. in breadth. The processus lienalis was represented by a single strand of tissue 1 to 2 mm. in diameter looking like a nerve or artery. On section it contained a lumen, the remains of the pancreatic duct. No trace of the processus uncinatus could be found. The liver weighed 174 Gm. It was red and normal on section. Microscopic examination of different parts of the pancreatic remains showed neither acini nor islands of Langerhans but only scattered groups of epithelial cells interpolated between bundles of connective tissue. The evidence is convincing that these small groups of cells, although so changed as no longer to be recognizable as pancreatic epithelium, were able to function so effectively as to prevent the development of glycosuria. The dog's dextrose tolerance was more than 40 Gm. but less than 50 Gm. three months before its death.

More information on the absorption of food was gained by making a chemical analysis of the contents of different portions of the intestine four hours after a standard meal for dogs deprived of pancreatic secretion compared with a normal dog. The standard meal consisted of powdered milk 50 Gm., cracker meal 75 Gm., dried beef extract 50 Gm. and brewers' yeast 5 Gm. The average p_H in different portions of the intestine was lower in dogs without pancreatic juice, as was to be expected. The normal dog absorbed 120 Gm. of the food fed in four hours, while the average absorbed by the dogs without pancreatic digestion was only 30.5 Gm., or only one fourth as much as a normal dog. Forty-eight per cent of the nitrogen and 68 per cent of the fat of the food were absorbed normally in four hours and only 9.7 per cent of nitrogen and 11.5 per cent of fat in the absence of pancreatic juice. It is usually stated that the carbohydrates are well absorbed without the aid of the pancreas, but I found that only 41 per cent was absorbed, which was 36 per cent less than in health. It is evident that the small amount of carbohydrates in the stools when the pancreatic ducts are occluded is largely explained by bacterial action in the large intestine and hence is not utilized by the organism.

It was rather surprising to find that the fat was well split in the absence of pancreatic digestion. In fact, 51.6 per cent of the fat in the jejunum was split. This is apparently due to the action of the gastric lipase, as 35 per cent of the fat in the stomach contents was split. Why the fat which is split and well mixed with bile is not absorbed is a question to which present day physiology has no answer. As I have regularly found phosphatase in the pancreatic juice obtained from the duodenum of normal persons and recently Nothmann, working in my laboratory, has obtained it from the pure juice secreted through a pancreatic fistula in a dog, it seems not improbable that the absence of phosphatase may explain the failure of the fat to be absorbed from the intestine. So far as I know, previous to this work the presence of phosphatase had never been sought for in the pancreatic juice.

Cannon [17] found that the emptying of the normal stomach was slowest after a fat meal. Nothmann and Wendt [18] were the first to observe that, in a depancreatized dog, fat left the stomach with great rapidity. When they tied the pancreatic ducts the emptying time of the stomach was the same as in a normal dog. Evidently they failed to exclude all the pancreatic juice from the duodenum, as I found that the emptying time of the stomach was greatly increased after feeding cream to dogs with the pancreas in situ but separated from the duodenum and observed that even a mixed meal left the stomach somewhat more quickly as a rule than in a normal animal. This is shown in charts 2 and 3. Barium sulfate was added to the food, and roentgenograms of the abdomen were made after varying intervals of time. The area of the barium shadows in the intestine was measured in square centimeters. More of the cream passed from the stomach into the

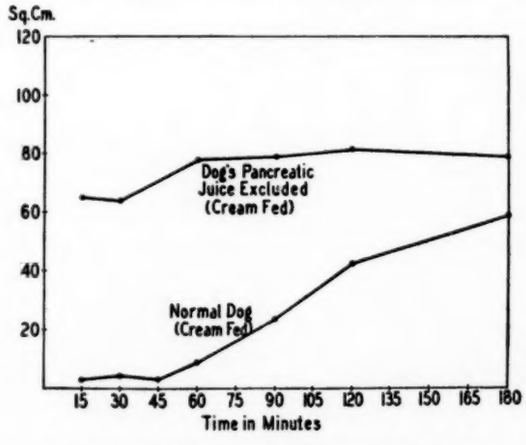

Chart 2.—Surface area of barium meal in intestine.

intestine of the dogs without pancreatic juice in fifteen minutes after being fed than in three hours normally. It would be interesting to see whether this occurs in cases of cancer or fibrosis of the pancreas associated with partial or complete obstruction of the ducts. If

16. Dragstedt, L. R.: Present Status of Lipocaic, J. A. M. A. **114**: 29 (Jan. 6) 1940.

17. Cannon, W. B.: The Mechanical Factors of Digestion, New York, Longmans, Green & Co., 1911, p. 115.

18. Nothmann, M., and Wendt, H.: Ueber eine regulatorische Funktion des Pankreas für die Magenentleerung nach Fettmahlzeit, Arch. f. exper. Path. u. Pharmakol. **168**: 49, 1932.

so, it would be a distinct aid to diagnosis. The cause of the rapid passage of fat from the stomach when there is no pancreatic digestion and the cause of the very slow emptying of the stomach normally when fat is fed are both unknown.

Because of the rapid emptying time of the stomach when a meal rich in fat is fed to an animal deprived

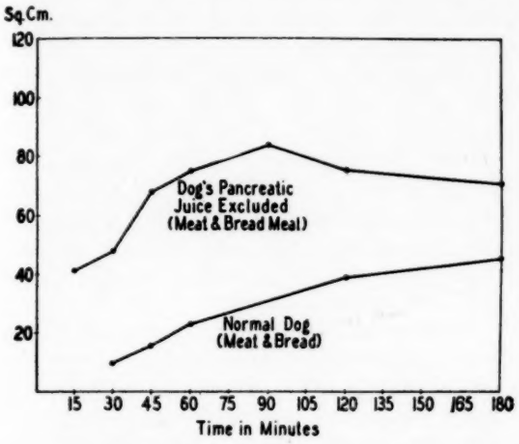

Chart 3.—Surface area of barium meal in intestine.

of pancreatic digestion, it would seem probable that there would be little gastric lipase mixed with the stomach contents owing to the short time the fat is in the stomach and hence little splitting of the fat by gastric lipase in the intestine. The correctness of this supposition is borne out by the work of Nothmann and Wendt,[19] who found that, in the small intestine of a depancreatized dog five and a half hours after feeding 200 Gm. of potato and 50 Gm. of olive oil, only 2.9 per cent of the fat was split.

An extensive study of the effects of grafts of the pancreas into the spleen and in the subperitoneal portion of the abdominal wall was made. When the graft was provided with a mesenteric vascular stalk for a few weeks, it sometimes continued to live in its new location after the stalk was tied and to prevent the occurrence of diabetes when all remaining pancreatic tissue was removed from the body (Pratt and Murphy[20]). When transplants of pancreatic tissue were made without vascular connections being preserved, they underwent rapid autolysis, sometimes disappearing in a day or two. Some animals died within a few days of pancreatic intoxication and some even within twenty-four hours, especially when transplants were placed in the subperitoneal tissues. The splenic tissues or the connection of the spleen with the liver through the portal system seems to furnish some protection against this autolytic poisoning. The diastase in the urine rose to a pathologic level within twenty-four to forty-eight hours after the transplant was made and dropped to normal the following day. For example, on Aug. 27, 1913 Dr. Beth Vincent embedded in the spleen of a dog a portion of the pancreas freshly removed from another dog. The following day there was no diastase in the urine. On August 29 there was 100 Wohlgemuth units, but on August 30 only 4 units was present. Ligation of the pancreatic ducts usually produced a greater elevation of diastase in the urine than did autolysis of even large transplants of pancreatic tissue. McClure and I reported our diastase studies in 1917.[21] The significance of the rapid drop in diastase values after obstruction of the pancreatic ducts or injury to the pancreatic tissue was not grasped. That the same rapid drop in elevated diastase values occurs in acute pancreatic disease was not recognized until 1930, when this fact was announced by Skoog[22] of Helsingfors, Finland. Since then it has been found that in acute pancreatic edema and in pancreatic necrosis the diastase levels in the blood and urine are considerably and often decidedly elevated in the first twenty-four hours after onset in practically 100 per cent of the cases but may drop to normal in the following twenty-four hours (chart 4). Studies on diastase were resumed by us in the laboratories of the Tufts Medical School in 1930. We found that, at a time when the urine diastase was normal in dogs, the blood diastase could be greatly increased. For example, Dr. L. R. Whitaker on June 25, 1931 separated the pancreas of the dog Jerry from the duodenum by the usual Murphy method. The following day the urine contained only 8 Wohlgemuth units while the blood contained 2,000 units. A number of investigators have found that after the pancreatic ducts are tied the blood and urinary diastase, at first elevated, drops to normal within a week or two, but Golden, Sieracki, Handelsman and Pratt[23] found that the permanent occlusion of all the pancreatic ducts in the dog resulted in a persistent increase of diastase in the blood of 3 out of 4 animals. In 1 dog there was twice the maximum activity on the five hundred and fifty-first day, and in another dog there was 256 units, which is four times the upper normal level, on the eight hundred and ninety-fifth day. In spite of the increased blood diastase, the pancreas at autopsy was found reduced to a small fibrous nodule in which few acinous cells could be demonstrated. The source of the increased blood diastase in these dogs is unknown.

The importance of diastase determinations in the diagnosis of acute pancreatic disease cannot be over-

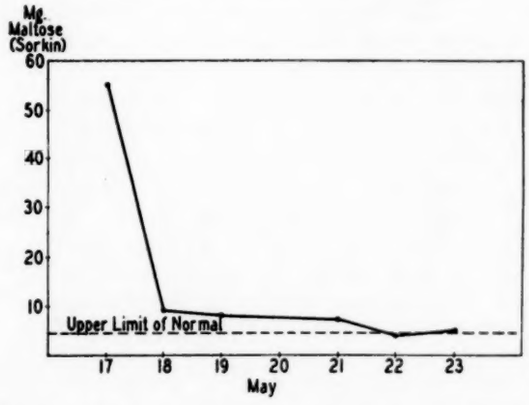

Chart 4.—Blood diastase in acute pancreatic necrosis. Rapid drop of blood diastase within twenty-four hours to almost normal level.

emphasized. At the present time well informed surgeons do not operate in a known case of acute pancreatic necrosis; hence the importance of recognizing

19. Nothmann, M., and Wendt, H.: Hat das Pankreas Einfluss auf die Resorption des Fettes? Arch. f. exper. Path. u. Pharmakol. **162:** 472, 1931.

20. Pratt, J. H., and Murphy, F. T.: Pancreatic Transplantations in the Spleen, J. Exper. Med. **17:** 252, 1913.

21. Pratt, J. H., and McClure, C. W.: A Study of the Diastatic Activity of Urine and Feces with Special Reference to Diseases of the Pancreas, Arch. Int. Med. **19:** 568 (April) 1917.

22. Skoog, T.: Studien über akute Pankreatiden, Lund, 1930.

23. Golden, L. H.; Sieracki, L. A.; Handelsman, M. B., and Pratt, J. H.: Diastase Activity of Blood, and Urine When the Pancreatic Ducts Are Permanently Closed, Am. J. Digest. Dis. & Nutrition **6:** 327 (July) 1939.

this disease before an operation is undertaken. The clinical signs are so obscure that formerly in very few cases was the diagnosis made except on the operating table. As the diastase value may fall to normal by the second or third day, the importance of making the test as soon as the patient is first seen is obvious. There is evidence that man, unlike the dog, may have higher

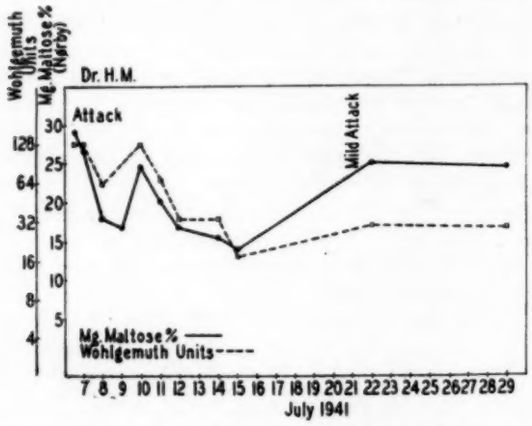

Chart 5.—Urinary diastase in acute pancreatic edema with cholelithiasis.

values in the urine than in the blood and that the elevated value persists longer in the urine. Hence the diastase content of the urine should always be determined. The safest course is to examine both blood and urine. I can recommend the improved Wohlgemuth test,[24] although it is chemically inaccurate, because it is accurate enough for clinical diagnosis and requires simple equipment available in every hospital and a report can be made within an hour. More exact methods are those of Nørby [25] and Somogyi.[26] The latter is preferable. It is important to repeat the examination at least once every day if the first value obtained is moderately elevated. A rapid drop in diastase activity gives the first value obtained additional significance.

Acute pancreatic edema was not clearly recognized as a clinical condition until Zoepffel's paper appeared in 1922.[27] He described 4 cases of acute epigastric pain in which there was edema of the pancreas without necrosis. As it is not a true inflammation, acute pancreatic edema is a better term than acute interstitial pancreatitis. This is the most common form of pancreatic disease. Unless diastase tests are made, it cannot be recognized. As it is usually associated with gallbladder disease, in most of the cases it is mistaken for biliary colic or cholecystitis. It is usually mild, but in some cases it progresses and pancreatic necrosis results. I believe a routine examination of the urine for diastase should be made and made without the delay of even twelve hours in every case of severe acute pain in the upper part of the abdomen. The frequency of acute pancreatic edema is suggested by the fact that I have made daily examinations of the urine for diastase activity in 2 unselected cases of what appeared to be typical biliary colic. In both moderately increased diastase values were found in the urine, which dropped to normal within twenty-four hours but rose again with the return of pain (charts 5 and 6). At operation some time later, gallstones were found in both cases.

Oser [28] recognized over forty years ago that bulky stools are suggestive of disease of the pancreas. He pointed out that they are notably excessive in quantity as compared with that of the food taken and are composed of undigested muscle fibers, fat and starch. The use of the Schmidt intestinal test diet is of aid in the diagnosis of obstruction of the pancreatic ducts, as it contains enough fat and rare meat to test the functional efficiency of the pancreas. Much information may be gained from the weight of the dried stools with the patient on the Schmidt diet.[29] The average weight of the dried feces in a series of 6 normal persons over a period of three days was 54 Gm. The maximum was 62 Gm.[30] I have given this diet to patients with various types of steatorrhea. In every instance when the dried stools weighed more than 300 Gm. there was subsequently found obstruction of the pancreatic ducts. In 5 cases of cancer of the pancreas, the weight ranged from 340 to 463 Gm. The greatest weight occurred when the common bile duct as well as the pancreatic ducts were obstructed. In our experience the disease other than pancreatic disease in which the heaviest stools occur is tropical sprue. The maximum weight in obstruction of the common bile duct when the pancreatic ducts were not involved was 221 Gm.

Determination of the amount of nitrogen excreted in the feces is helpful in diagnosis, as the value is low in sprue and obstructive jaundice and high in occlusion of the pancreatic ducts. In a case of obstruction of the common duct I obtained a daily excretion of only 1.1 Gm. of nitrogen (Schmidt diet), in a case of sprue 2.7 Gm., and in a case of occlusion of the pancreatic ducts as much as 8.5 Gm. While the amount

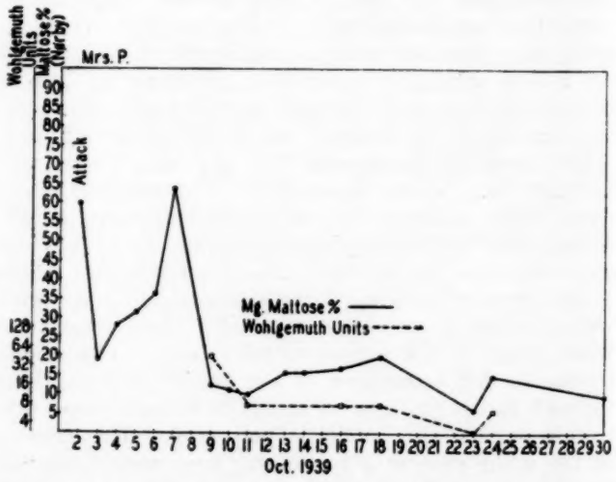

Chart 6.—Urinary diastase in acute pancreatic edema with cholelithiasis.

of nitrogen excreted in the feces is of diagnostic value, the percentage of nitrogen is of no value in differential diagnosis and the same is true of the percentage of fat. This is explained by the greatly increased weight of the stool in pancreatic disease.

24. Wohlgemuth, J.: Ueber eine neue Methode der quantitativen Bestimmung im Urin, Klin. Wchnschr. **8**: 1253, 1929.
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26. Somogyi, M.: Micromethods for the Estimation of Diastase, J. Biol. Chem. **125**: 399 (Sept.) 1938.
27. Zoepffel, H.: Das akute Pankreasödem eine Vorstufe der akuten Pankreasnekrose, Deutsche Ztschr. f. Chir. **175**: 301, 1922.
28. Oser, L.: Die pathognostischen Symptome der Pankreas-erkrankungen, Deutsche Klinik, Berlin and Vienna **5**: 165, 1901.
29. Schmidt, A., and Strasburger, J.: Die Fäzes des Menschen, ed. 4, Auflage, Berlin, 1915, p. 5. The diet is given also in Pratt, J. H.: Diseases of the Pancreas, New York, Oxford Loose Leaf Medicine **3**: 480, 1939.
30. Schmidt, A., and Strasburger, J.: Die Fäzes der Menschen, Berlin, 1915, p. 18.

The diagnosis of cancer of the pancreas has rarely been made except in the later stages of the disease. In a series of 53 autopsy records analyzed by Engleman,[31] the condition was correctly diagnosed before the terminal two weeks in only 16 of the patients (30 per cent). The common idea that the disease is characterized by a painless jaundice is not true. Jaundice is often a late symptom, and 24, nearly 50 per cent, of Engleman's patients did not have jaundice throughout the course of the disease. Loss of weight is the most common symptom and frequently the first sign of disease. In two thirds of the Brigham Hospital cases it was the first symptom noticed by the patient (Kiefer[32]). The average weight lost is more than 30 pounds (14 Kg.). Pain is the next most frequent symptom. It may be either dull and continuous or severe and paroxysmal. The former is usually located in the midepigastrium, the latter in the region of the umbilicus. In 1 of our cases the abdominal pain was confined to the left lower quadrant. It may or may not be related to meals; it may be localized, or it may radiate to the right hypochondrium, the back, the chest, the shoulder or downward even to the legs. Speed[33] reported the pain as severe in 61 per cent of his 52 cases. As the disease in a large percentage of the cases is not recognized during life, Engleman's statistics based on autopsy records give a more accurate percentage of the frequency of the symptoms, especially jaundice, than those of Speed and Kiefer, which deal only with cases in which the diagnosis was made or confirmed at operation.

The association of loss of weight and abdominal pain with negative physical and gastrointestinal x-ray findings should always suggest the possibility of pancreatic cancer. In many of the cases the mistaken diagnosis of neurosis is made.

The importance of examining the stools grossly, microscopically and chemically has already been stressed. In most early cases, however, the stools are normal and constipation is frequent. In the past few years we have failed in our clinic to make the diagnosis in at least 6 cases of cancer of the pancreas. Jaundice was not present in any of these and the stools were normal. Glycosuria was not present. X-ray studies of the gastrointestinal tract were negative. Only 2 patients had abdominal pain, but all had a striking loss of weight, ranging from 15 to 50 pounds (7 to 23 Kg.). In 3 the sedimentation rate was increased; in 1 it was 87 mm. in one hour (Westergren).

Additional diagnostic aids are needed, and one that deserves to come into general use is the secretin test. Hammarsten[34] isolated secretin in a crystalline form and later produced a less costly preparation that can be employed as a clinical test. The Swedish investigators, Ågren and Lagerlöf[35] used a double barreled tube by means of which the gastric and duodenal secretions can be collected separately under continuous suction. When injected intravenously secretin produces within a minute or two an abundant flow of pancreatic juice, which usually amounts to 150 cc. or more in one hour. The greatest volume I have obtained was 264 cc. In 1 case 100 cc. was collected in ten minutes. I have injected secretin into nearly 100 patients without untoward results. A second injection in the same subject has produced no unpleasant symptoms. The volume secreted in one hour, the hydrogen ion concentration, the alkalinity expressed in milliequivalents of bicarbonate, the concentration and units of enzymes (diastase, trypsin, lipase and phosphatase) and bilirubin have all been determined in my cases. As in the study of gastric secretion the determination of the acidity is of far more value than the activity of the pepsin, so Werthessen[36] has presented evidence by the statistical study of reported cases that the alkalinity of the pancreatic juice and not the enzyme values as determined by present day methods are of diagnostic value.

In all 5 proved cases of cancer of the pancreas studied in our clinic by means of the secretin test the volume, the alkalinity of the pancreatic juice and the concentration of the enzymes were greatly reduced.[37] In only 1 were creatorrhea and steatorrhea present. Hence without the secretin test no evidence of pancreatic insufficiency would have been discovered. In some cases of cancer of the pancreas studied by others the secretin test has yielded normal values (Lagerlöf,[38] Comfort[39] and Pollard and his co-workers[40]).

Furthermore, if a low alkalinity and low enzyme concentrations are obtained, one cannot conclude that the patient necessarily has organic disease of the pancreas, as I[41] have observed 2 cases of transitory hypochylia pancreatica in which the volume, alkalinity and enzymes were reduced as greatly as in cases of cancer. No similar cases have been found by others who have employed the secretin test. Hence the probability of organic disease exists if low values are found.

It is well to determine the serum lipase in all cases of suspected cancer of the pancreas, as Comfort and Osterberg[42] found it increased in 28 out of 69 cases, or 40.5 per cent, and in 6, or 67 per cent, of 9 cases in which there was cancer of the ampulla of Vater. Occasionally the diastase in the blood or urine has been found increased in cancer of the pancreas. This occurred in 2, or 8 per cent, of Comfort's 24 cases and in 1 of my cases.

The importance of the early diagnosis of cancer of the pancreas has been greatly increased since American surgeons, led by Allen O. Whipple, have demonstrated the possibility of successful extirpation of the duodenum and head of the pancreas in this disease. In his Bigelow Lecture delivered last fall Whipple[43] reported the case of a 47 year old woman who had no postoperative complications after a one stage radical duodenopancreatectomy. She regained 20 pounds (9 Kg.) and was free from symptoms nineteen months after operation. He has had 5 patients who survived for periods of five to twenty-eight months after the

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37. Pratt, J. H.; Brugsch, H. G., and Rostler, A. E.: The Secretin Test of Pancreatic Function, Tr. A. Am. Physicians **55**: 154, 1940. Hartwell, A. S.: The Secretin Test of Pancreatic Function, Bull. N. E. Medical Center **3**: 191 (Aug.) 1941.
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42. Comfort, M. W., and Osterberg, A. E.: The Value of Determination of the Concentration of Serum Amylase and Serum Lipase in the Diagnosis of Disease of the Pancreas, Proc. Staff Meet., Mayo Clin. **15**: 429, 1940.
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radical operation. Whipple excludes the pancreas from all connection with the intestinal tract. This would result in a serious disturbance of absorption of fat and nitrogen, as has been emphasized repeatedly in this lecture, if sinuses did not speedily form and carry the pancreatic juice into the intestine. It will probably be found wise to implant the stump of the pancreas into the wall of the stomach or jejunum, as it is certain that the essential pancreatic juice will not find its way from pancreas to intestine in all cases.

The reasons for making an early diagnosis of pancreatic disease can be briefly stated. Early diagnosis of acute pancreatic edema and pancreatic necrosis is essential to avoid needless operation. Early diagnosis of cancer of the pancreas permits of radical operation which holds promise of prolongation of life and increased comfort and the possibility of cure. In diagnosing acute disease the determination of diastase in the blood or urine is essential. In diagnosing cancer of the pancreas the secretion test is a great aid, but to recognize the disease in its early stage the diagnostic significance of loss of weight with pain in any part of the abdomen in the absence of disease of stomach and intestine should be recognized. The diagnosis is most often missed because physicians forget that the patient has a pancreas.

30 Bennet Street.

THE SO-CALLED MUCOUS COLITIS OR SPASTIC IRRITABLE COLON

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This is not a disease, it is a condition. It is due to a disturbance in the vegetative or autonomic nervous system. Usually it is neurogenic in origin, although often it is the result of irritation either in the gastrointestinal tract or in the organs adjacent to the gastrointestinal tract. While not critically ill, these patients, because of their anxiety, are really sick. The mortality is nil but the morbidity is great. Because the pain of a spastic irritable colon can simulate the pain associated with disease of any organ of the abdomen, the patient should not be subjected to surgical or even stringent medical therapy without the benefit of adequate study.

The story the clinician so frequently hears when he is consulted by a patient suffering from "the so-called mucous colitis or spastic irritable colon" is illustrated by the following case history:

A married woman of 46 complains of colicky pains in the abdomen, excessive gas with belching, palpitation, constipation, sleeplessness, nervousness and fatigue. This started nine years ago, soon after the death of her mother from cancer, as a recurrent pain in the right lower quadrant always associated with distention and belching. She was told that she had appendicitis, and the appendix was removed. This was only the first of a series of operations. There followed, in fairly rapid succession, a cholecystectomy, an exploratory operation at which some adhesions were severed, and finally a nephropexy. None of these gave her relief. Instead the attacks became more frequent and severe. She became nervous and developed palpitation. She no longer can sleep properly and is always tired. She has obstinate constipation, but the laxatives prescribed only aggravate the pain. Advice by several physicians that there was nothing seriously wrong and to go home and forget it only has made her more apprehensive. She is sure she is really sick. She is miserable. She has lost weight. She fears cancer. She is most anxious to find out just what is wrong. She is willing to do anything, even to be operated on again to get relief.

Yes, this is the story the clinician so frequently hears and, in an effort to prevent such a story from developing, this paper is being presented today. I wish to emphasize the fact that the patient cannot be benefited by repeated surgical attempts to remove all sources of pain, as is illustrated in the case cited, nor can he be benefited by being told that he has no organic disease, to go home and forget it. The only way the physician can render a service to such a patient is by being painstaking, deliberate and thorough in, first, taking the history and listening with interest to every detail of the complaints; second, making his physical, clinical and roentgenologic examinations, and, third, interpreting his findings and outlining the plan of management.

As the origin of many cases of spastic irritable colon is neurogenic, the therapy begins as we take the history. From the start we must study the individual and then the condition from which the individual is suffering. This means a personal interest on the part of the clinician throughout the entire diagnostic procedure in order that he may gain the patient's confidence. Even though the history points directly toward a functional disease, the clinician should proceed with a thorough physical and clinical examination—for sometimes in the most pronounced neurotic there will be found some organic lesion acting as an irritant. The physical examination must be complete, looking for foci of infection, error in refraction, disease in the cardiorespiratory systems, as well as making the usual abdominal examination. A proctoscopic and sigmoidoscopic examination should be made on every patient. A pelvic examination in the female and a digital examination of the prostate in the male are necessary.

In the typical case the physical examination reveals an undernourished, asthenic individual. The colon, especially the sigmoid colon, is palpable, cordlike and tender. The cecum often is distended and tender. There may be generalized tenderness and distention. As a routine the urine, blood, feces and gastric contents should be studied. The characteristic stool consists of scybalous masses or ribbon-like stools covered with mucus. At times mucous casts of the colon are brought in and often these harmless casts cause the patient much alarm. There are no characteristic findings in the urine, blood or gastric analyses in this condition, but these examinations must be made in order to rule out contributory diseases.

A complete gastrointestinal fluoroscopic and roentgenologic examination, including a barium enema, should be made. Next to the history, this examination more than any other throws light on the case. It shows the condition of the cardia, the presence of a hiatus hernia or a peptic ulcer. It sometimes picks up an early gastric carcinoma in the operable zone. It shows the motility throughout the entire gastrointestinal tract. It might reveal the presence of a carcinoma of the colon, a regional ileitis, a megacolon or intestinal diverticula. When no pathologic condition is demonstrated we have the picture of the spastic colon to show the patient as we explain our findings.

The examination of the gallbladder should include x-ray study and a gallbladder drainage. This study reveals the presence or absence of stones and infection and shows the functional capacity of the gallbladder.

Read before the Section on Miscellaneous Topics, Sessions on General Practice, at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

One should make a plain roentgenogram of the kidneys, ureters and bladder, paying particular attention to the size and location of the kidneys and looking especially for any opaque shadow that might indicate a calculus in the urinary tract. In some instances it is necessary to make a complete urologic study.

TREATMENT AND MANAGEMENT

If the study has shown organic disease, treatment is planned as indicated. Success in treating the neurogenic phase depends on gaining the confidence and cooperation of the patient. The history, the complete summary of the physical findings and their interpretation, and the diagnosis must be discussed with the patient. I make it a policy to dictate all my observations in the presence of the patients. I then attempt to explain the function of the vegetative nervous mechanism and especially what it has to do with digestion. I tell them the mechanism of a spastic irritable colon. I encourage questions. I never under any circumstances belittle their suffering but stress the point that there is nothing seriously wrong. I try to take away from them their every worry, for worry and anxiety increase the suffering. I tell them that they must expect the colon to become spastic and irritable after any severe physical or nervous strain. They are told to consider these return attacks as detours, not to regard them seriously but to go on about their work and soon the attack will abate and they will be back on the good road again. As has been said, they must learn to get well with the spastic irritable colon and not try to get well of it.

It has been my experience that this frank and candid understanding between the patient and the physician is of utmost importance. I have several copies of "Nervous Indigestion" [1] and these books are always out being read by nervous, irritable colon patients and it helps them in the "getting better" effort. It seems that reading something that has been written for the physician makes an impression on them—in other words, it helps them to believe.

SEDATIVES AND ANTISPASMODICS

Sedatives and antispasmodics are given in quantities sufficient to quiet the general nervousness and relax the painful spasm in the colon until such time as the patient is able to control his symptoms. After a complete understanding, some of the more stable patients will get along without any at all. Some will need only a mild sedative at bedtime. It is important that these people sleep, for a good rest for several nights in succession will go a long way toward restoring a disturbed nervous system. In extreme nervousness, large doses of sedatives must be given, enough to quiet the patient until he is able to get hold of himself. I usually give antispasmodics in combination with a mild sedative three or four times a day. This is most effective about twenty minutes before meals, because the spasm is often aggravated by the ingestion of food. As sedatives I give one of the barbiturate preparations and, when large doses are necessary, I combine sodium bromide with elixir of phenobarbital. As antispasmodics, atropine sulfate, tincture of belladonna or one of the newer synthetics is quite effective. When giving large doses of sedatives and antispasmodics it is necessary to be careful to watch for toxic reactions. For this reason I always discontinue the use of belladonna two days out of seven. The dosage should be gradually lessened until finally the patient can get along without any regular sedative or antispasmodic. He should always keep some handy, however, to use for the relief of recurrent attacks, which are bound to come from time to time. If he knows that he has medicine which will relieve the pain when it starts, he will have less fear.

DIET

Diet is important in treating patients with a spastic colon, not so much in restricting them as in getting them to eat enough. They seldom are ill because of what they have eaten but many put the blame for their every gastrointestinal symptom on some particular food they have had. They are afraid to eat and as a result are undernourished. I encourage them to take an adequate balanced diet. With the more severe case it is necessary to start with a smooth, bland diet, eliminating coarse foods with seeds or skins, raw fruits and vegetables, and fried foods. One can soon relax these restrictions, allowing the patient to take anything he can tolerate. The old adage "the proof of the pudding is the eating" should be followed literally.

I find it expedient to add vitamins. There is usually a multiple deficiency and a multiple vitamin capsule is indicated. Additional B complex in a concentrated form or as brewers' yeast and additional vitamin C are often necessary. For some of the extremely nervous persons I have found that niacin (nicotinic acid) 50 mg. three times a day is of benefit.

ALLERGY

Space does not permit a detailed analysis of food allergy and its possible relation to spastic irritable colon, but it should ever be borne in mind that some patients are sensitive to various foods and that when this sensitivity exists only the elimination of that particular food from the diet will give relief. To determine the exact food to which the patient is sensitive often requires the services of an experienced allergist.

LAXATIVES

Most of these patients suffer from constipation and have for years. They have tried various laxatives, most of which have acted as an irritant. I mention cascara and phenolphthalein only to condemn them for patients suffering from an irritable colon. Liquid petrolatum, plain or combined with agar, often gives very satisfactory results. With some it may be necessary to add magnesia magma or nonirritating bassora gum bulk producer. Plain petrolatum in doses of from 1 to 4 teaspoons a day will often act well as a nonirritating laxative. Some patients will get along very well on a small saline or plain water enema. The physician must ascertain what procedure is best suited for a particular patient. Castor oil is effective in treating an acute relapse, which will occur despite the best efforts of both patient and physician. When the patient reports a severe colicky pain, abdominal distention, nausea and the passing of nothing but mucus, about 3 ounces of castor oil followed in thirty minutes by a teaspoon of paregoric will usually give relief.

Thus I have outlined a plan for the diagnosis and management of spastic irritable colon. It includes individualization of the highest order, thoroughness in the diagnostic procedure, frankness in the interpretation of the findings, kindness, sympathy, and yet firmness in outlining the course of treatment.

318 East State Street.

1. Alvarez, W. C.: Nervous Indigestion, ed. 2, New York, Paul B. Hoeber, 1931.

ABSTRACT OF DISCUSSION

DR. WALTER C. ALVAREZ, Rochester, Minn.: This is an excellent description of a very common disease. I feel strongly that we should never call the syndrome by the term colitis. I object to that term because I have to spend many hours each week trying to reassure women who have been much frightened by this diagnosis. What happens sometimes is that they think they have chronic ulcerative colitis. I feel strongly that we physicians should tell these people that they have a normal colon. It is a normal colon. It looks that way at operation or at necropsy, and it really looks normal enough in roentgenograms. Where I work the roentgenologists report all these so-called spastic colons as normal. Of course they are spastic because the woman is tense and nervous. The colon is not ulcerated or inflamed. The trouble is that nerves are playing tricks with it. I don't care where the colon lies in the abdomen. It is a tube in which material is pushed along not by gravity but by muscular action. Hence what difference can it make whether it is near the navel or down in the pelvis? Kinks also are normal and cause no trouble. Some colons are big and roomy, and some are smaller. Some have a long sigmoid loop and some do not. All these variations can be found in healthy athletes, so we must not talk to people about them. We must not make anxiety neuroses in our patients. We can't promise these people a cure. Once one has a sensitive colon one is likely to have it all one's life. I inherited one from my mother, and I know I shall never lose it. If I get too tired or emotionally upset or am coming down with a cold, or if I eat something to which I am allergically sensitive I get a sore colon. I have learned to live amicably with that colon, and I try to teach my patients to do the same. I ask them so to live that their colon won't ruin their life. Whatever we physicians do we must never operate on these people because of their sore colon. I don't think we should keep them filled up with phenobarbital all day and every day. I permit a sedative only on a day when the colon is in an uproar.

DR. W. COLE DAVIS, Atlantic City, N. J.: I feel that no colitis is a true colitis unless there is blood. If there is no blood in the mucus, it is of neurogenic origin. Patients who are sent to me sometimes, after being in the hands of a general practitioner, are sent to me not because the general practitioner was incapable of handling them or because he didn't have an insight into the condition but chiefly because he hasn't time to bother with the patient or is not interested in persons who take a great deal of time. Unless one has time to spend, at least an hour, with a patient whose illness is of neurogenic origin, taking the history and listening to him talk, one should not even bother with him. If one takes a patient and merely gives him sedatives because he cannot sleep, one is not going to do him any good at all unless one can go into his problem. All of the multitudinous varieties of barbiturates that are being put out now are used to great excess and are very much to the detriment of the patients. They are dangerous drugs, very easily habit forming with nervous patients.

DR. MYER SOLIS-COHEN, Philadelphia: Neurogenic disturbances, including those of the gastrointestinal tract, such as irritable colon, gas and nervous indigestion, are frequently produced by bacterial toxemia due to focal infection. We should always examine the tonsils, pressing on them to see if pus can be expressed. An expert should examine the sinuses. The whole mouth should be roentgenographed—not only the teeth but also the spaces where teeth have been removed. A tonsillectomy doesn't mean removal of infection, because after tonsillectomy the infecting organisms often remain in the tonsillar spaces, in the nasopharynx and in other parts of the throat. Nor does the fact that the sinuses have been opened and drained mean that the focus of infection has been removed, because the organism may still remain in the nose and still infect the patient. While it is necessary to remove infected tonsils, teeth and roots and to drain infected sinuses, this does not necessarily remove the bacterial focus of infection which is causing the toxemia and the secondary symptoms. We must in addition increase the patient's resistance to the infecting organism so that any organisms left in the nose and in the throat will be killed and their toxins will be combated. That is done by means of a vaccine containing the infecting organism. An ordinary culture, however, tells only what organisms are present and may not even contain the organism causing the infection. It does not tell which of the several organisms present is causing the infection. In the pathogen selective culture, two simultaneous cultures are made, one in a rich medium, such as brain-broth, and the other in the patient's fresh, whole, coagulable blood, the idea being that the organisms that are killed by the patient's blood are not infecting him, while the organisms that grow in his blood are those against which he has no bactericidal power and which are probably infecting him or are capable of infecting him. Ninety per cent of the pathogen selective vaccine consists of the organisms that grew in the blood and 10 per cent consists of the other organisms. It has to be administered very cautiously because the dose may vary a million or a trillion times. When it is administered properly, the patient frequently develops resistance to his infection, kills off the infecting organisms, combats the toxemia and loses his nervousness, nervous indigestion, irritable colon and other symptoms.

DR. C. W. MCGAVRAN, Columbus, Ohio: I have nothing to add to the discussion. I want to thank the gentlemen who have discussed this paper. I agree with them thoroughly. I want Dr. Cohen to understand that the very first thing I said to do in the line of making a complete survey was to search for foci of infection.

SULFATHIAZOLE IN EPIDEMIC SONNE DYSENTERY

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AND
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The beneficial effects of sulfathiazole and sulfaguanidine on the clinical course of endemic bacillary dysentery has been clearly demonstrated.[1] The febrile period and the length of time during which abnormal stools occur are definitely shortened. Insufficient data, however, are available to evaluate the effects of the sulfonamide drugs on the two factors which have important epidemiologic implications, namely the length of time elapsing before the dysentery bacillus can no longer be demonstrated in the stools and the incidence of relapses. The importance of these two factors in the control of epidemics occurring in institutions, schools, camps and the like has been frequently stressed. Our purpose in the present communication is to describe the study of a relatively small outbreak of Sonne dysentery in which data were obtained bearing on these two points.

METHODS

Material for cultural study was obtained by the insertion of a finger, protected by a finger cot moistened with tap water, into the rectum and rubbing the finger over the mucosa, fecal masses being avoided if possible. After this procedure the finger cot was cleaned by a cotton applicator that had previously been tubed and sterilized in 3 cc. of a 30 per cent glycerin-saline solution. The contaminated applicator was then replaced in the glycerin-saline tube. The glycerin-saline solu-

From the Southbury Training School.

1. Marshall, E. K., Jr.; Bratton, A. C.; Edwards, L. B., and Walker, Ethel: Sulfanilylguanidine in the Treatment of Acute Bacillary Dysentery in Children, Bull. Johns Hopkins Hosp. **68**: 94 (Jan.) 1941. Lyon, G. M.: Chemotherapy in Acute Bacillary Dysentery: Part II. Clinical Use of Sulfanilylguanidine, West Virginia M. J. **37**: 54 (Feb.) 1941. Cooper, Zucker and Wagoner.[11] Anderson.[11]

tion [2] was composed of glycerin 300 cc., water (distilled) 700 cc., sodium chloride 6 Gm., dipotassium hydrogen phosphate 3.1 Gm. and potassium dihydrogen phosphate 1 Gm.

By this means specimens could be obtained from many persons in a short space of time and subsequent plating could be expedited. The use of rectal swabs has been shown to yield a much higher incidence of positive stool cultures than the use of the whole stool.[3] The effectiveness of the glycerin-saline solution for preservation and transportation has been previously described by Wu and Sia [4] and by Sachs.[5]

At the laboratory, the exposed swab was thoroughly agitated in the glycerin-saline solution, removed and used to place a large drop of the suspension on a MacConkey's plate (Difco). After subsequent streaking of the entire surface of the medium with a wire spreader, the plate was incubated at 37 C. for twenty-four hours. Suspicious colonies were fished out, inoculated into Kligler's iron agar (Difco) tubes and again incubated. Tubes showing acid butts, alkaline slants and no gas or hydrogen sulfide formation were then subjected to further study by appropriate biochemical and serologic procedures to determine whether Shigella organisms were present.

The effectiveness of this procedure is indicated by the fact that initial cultures were positive for Bacterium sonnei in 43 out of 44 patients with clinical dysentery. The organism was isolated from the forty-fourth patient during subsequent cultures.

BACTERIOLOGY

The Sonne organisms isolated during the outbreak had the following characteristics. On MacConkey's medium the colonies were white, 3 to 5 mm. in diameter, opaque, smooth to lobate edged and slightly convex. A central red color was present in a few instances in twenty-four hours and in almost all cases after several days' growth. The biochemical characteristics are given in table 1. Immune rabbit serum prepared against one of the first strains isolated agglutinated all the strains isolated to an average titer of 1:2,560.[6]

During our investigation of the 166 inhabitants of the three infected cottages, carriers of Shigella organisms other than Bacterium sonnei were discovered. Seven were carriers of Shigella alkalescens, 9 of Shigella ceylonensis and 8 of a probable anaerogenic coliform organism which resembled Shigella ceylonensis biochemically but differed by being motile. The production of indole and the fermentation of dulcitol served to differentiate these organisms from Bacterium sonnei. Their biochemical behavior is also summarized in table 1. The significance of these organisms as probable pathogens is still undetermined; they did not appear to play a significant role in the present epidemic.

Rectal cultures, obtained in the manner previously described, of 300 new admissions revealed 3 carriers of Bacterium sonnei, 4 of Shigella alkalescens and 2 of unidentified, presumably nonpathogenic species. The Sonne strains isolated from the new admissions were shown to differ biochemically from the epidemic strain in being rapid rhamnose fermenters. Dr. Kenneth M. Wheeler [7] of the Connecticut State Department of Health Laboratories has noted that almost all strains of Bacterium sonnei isolated in Connecticut fermented rhamnose within twenty-four hours, whereas our epidemic strain required from two to eleven days to ferment this carbohydrate.

DESCRIPTION OF THE EPIDEMIC

At the time the first case appeared there were approximately 600 inmates living in eighteen cottages, each housing about 40. Each cottage is a complete unit, with its own kitchen, dining room, sleeping quarters, cooks and attendants. The only significant contact between the cottages was through certain cooks and attendants who served in several cottages as relief personnel. However, laundry and stores are centralized. Cases of dysentery appeared in only three of the eighteen cottages. The original source of the outbreak and the method of spread to the other two cottages, which were in widely separated parts of the institution, could not be ascertained in spite of careful search. It is not unlikely, however, that a temporary carrier state among some of the relief personnel was responsible, although the organisms could not be isolated at any time from these persons.

The same general procedure for controlling the epidemic was followed in all of the cottages involved. All persons with clinical symptoms of the disease were transferred to the institution's hospital. Cultures were taken on all inmates remaining in the cottage and the inmates were then separated within the cottage into two groups, depending on the results of the culture, i. e., whether or not Bacterium sonnei was present. On recovery from the acute illness, the patients were

TABLE 1.—*Biochemical Characteristics of Organisms Isolated During the Course of a Sonne Dysentery Epidemic*

	Bacterium sonnei (57)*		Shigella alkalescens (11)		Shigella ceylonensis (9)		Anaerogenic coli (8)		Shigella Unidentified (2)	
	Reaction	Days†	Reaction	Days	Reaction	Days	Reaction	Days	Reaction	Days
Dextrose	+	1	+	1	+	1	+	1	+	1
Lactose	+	10	—	..	+	5	+	1	—	..
Sucrose	+	17	—	..	+	1	—	..	+	1
Salicin	—	..	—	..	—	..	—	..	+	1
Maltose	+	2	+	2	+	2	+	1	+	1
Mannitol	+	1	+	1	+	1	+	1	+	1
Rhamnose	+	4‡	+	2	+	1	+	2	+	1
Arabinose	+	1	+	1	..	..	+	1	+	1
Raffinose-melitose	+	7	..	..	—	..	..	..	—	..
Cellobiose	—	..	..	..	—	..	..	..	—	..
Inositol	—	..	..	..	—	..	..	..	—	..
Dulcitol	—	..	+	1	+	1	+	5	+	1
Sorbitol	—	..	+	2	+	1	+	1	+	1
Xylose	—	..	+	1	+	1	+	1	+	1
Adonitol	—	..	—	..	—	..	—	..	—	..
Glycerin	+	5	..	..	+	1	..	..	+	1
Galactose	+	1	..	..	+	1	..	..	+	1
Dextrin	+	5	..	..	—	..	..	..	+	1
Citrate	—	..	—	..	—	..	..	..	—	..
Voges-Proskauer reaction	—	..	—	..	—	..	—	..	—	..
Methyl red	+	..	+	..	+	..	..	..	+	..
Indole	—	..	+	..	+	..	+	..	+	..
Motility	—	..	—	..	—	..	+	..	—	..

* Number of strains studied.
† Average number of days required by positive strains to ferment the carbohydrates. All the strains studied were gram-negative rods that fermented the carbohydrates with acid but no gas formation. Fermentation reactions were carried out for twenty-one to twenty-eight days.
‡ Excludes the three new admission strains that ferment this sugar in twenty-four hours.

2. Stools and Urine Cultures for Enteric Disease Organisms: Approved Method EN-1, Connecticut State Department of Health, Bureau of Laboratories, Division of Diagnostic Microbiology Laboratory Methods, Dec. 11, 1941, p. 2.

3. Cruickshank, R., and Sawyer, R.: An Outbreak of Sonne Dysentery, Lancet **2**: 803 (Dec. 28) 1940.

4. Wu, J. P., and Sia, R. H. P.: The Beneficial Action of Glycerin on B. Dysenteriae in Dysenteric Stools, Chinese M. J., Suppl. 1, 179, 1936.

5. Sachs, A.: Difficulties Associated with the Bacteriological Diagnosis of Bacillary Dysentery, J. Roy. Army M. Corps **73**: 235 (Oct.) 1939.

6. Dr. Kenneth M. Wheeler of the Connecticut Department of Health, Bureau of Laboratories, checked our strains biochemically and serologically.

7. Wheeler, K. M.: Personal communication to the authors.

returned to their respective cottages and placed in the Sonne positive group. Stool cultures were carried out on the positive group at about weekly intervals. When two consecutive cultures were negative, the person was placed in the negative group. Cultures were carried out on the negative group at less frequent intervals.

The clinical course of the disease was relatively mild. The onset was sudden with abdominal cramps, diarrhea and, in most instances, vomiting. Fever, ranging from 100 F. to 105 F. was present in more than 75 per cent of the cases. Gross blood was observed in only 3 cases; parenteral fluid was administered in 2 cases. None of the patients appeared seriously ill and there were no fatalities. Of the 44 patients with clinical dysentery, 17 were treated routinely; the remaining 27 were given sulfathiazole in addition to the routine treatment. The onset of the disease was approximately of equal severity in the drug treated and in the untreated (control) group. The first case occurred on Oct. 9, 1941, the last case on Dec. 30, 1941, and the three cottages were found to be entirely free from the Sonne organism for the first time on Feb. 26, 1942.

TABLE 2.—*Relation of Age to Susceptibility to Sonne Dysentery*

Age Range	No. in Group	Number Sick	Percentage Sick	Number Carriers	Percentage Carriers
6 to 10	53	23	43.40	7	13.20
11 to 15	47	17	36.15	2	4.25
16 to 60	66	4	6.06	1	1.51
Total	166	44	25.90	10	6.03

OBSERVATIONS

Table 2 shows the relationship of age to the incidence of the disease in the three cottages involved. It will be noted that in the youngest group (those from 6 to 10 years of age), 43 per cent became ill and 13 per cent were found to be carrying the Sonne organism without showing any abnormal symptoms. This may be compared to the group over 16 years of age in which only 6 per cent became ill and only 2 per cent carried the Sonne organism without symptoms. A similar relationship of age to susceptibility to bacillary dysentery has been pointed out by Davison,[8] Quinlivan[9] and Fyfe.[10]

A comparison is presented between the group receiving sulfathiazole and the group not receiving chemotherapy in table 3. The average age of the former group was about 11 years, while of the latter it was about 14 years. Statistically this difference was of no significance. The dose of sulfathiazole varied between 3 and 6 Gm. a day, depending on the weight of the patient, and was given in four to six doses a day for an average of four days. No evidence of toxicity due to the administration of the drug was encountered. As noted by others,[11] the average number of days of fever and diarrhea was less in the drug treated group, although the differences were small owing to the mildness of the disease. When only the cases of more than average severity were compared in the two groups, however, the beneficial effects of sulfathiazole were more apparent. The clinical picture rapidly improved, while the duration of fever and diarrhea was definitely decreased.

The study of the weekly stool cultures in both groups was of considerable interest. In the control group, the average number of days from the onset of illness until the rectal cultures were consistently negative was 19.7 ± 3.7 (standard error) with a range from four to forty-eight days. In the sulfathiazole treated group, the number of days from the cessation of therapy until the rectal cultures became negative average 33.9 ± 4.4 (standard error) with a range from seven to eighty-four days.

Stool cultures during the administration of sulfathiazole, and for some days immediately thereafter, showed either no growth or an occasional colony of Escherichia coli on MacConkey's plates. However, in 20 of the 27 patients treated with the drug there was a return of the dysentery organisms within three weeks after treatment was stopped. Actually, 7 cases became positive during the first week, 10 additional cases during the second week and 3 during the third week. There were no relapses in the group not receiving sulfathiazole, while relapses occurred at varying intervals in 3 cases following the cessation of therapy in the drug treated group. One of the cases is of particular interest. This was a 12 year old boy who was admitted to the hospital on December 19 soon after the development of fever and diarrhea. Sulfathiazole was started on admission and continued for four days. The temperature and number of stools became normal within twenty-four hours after the drug was started, and the patient was returned to his cottage two days after the cessation of drug therapy. At this point rectal cultures showed no bacterial growth. Two days later his temperature rose to 102 F. and numerous diarrheal stools were passed that were positive for Bacterium sonnei. Another four day course of sulfathiazole was administered and a rapid clinical recovery followed. Again the rectal culture showed no growth. One week later, however, the Sonne organism was again isolated. On Jan. 7, 1942, almost three weeks after his initial attack, he had, for the third time, diarrhea, fever and vomiting. He received no drug therapy during this attack and was clinically well within forty-eight hours. Cultures taken at weekly intervals following this relapse remained negative. In the other 2 cases the relapses occurred five and eleven days, respectively, after the cessation of drug therapy. Rectal cultures, which had shown no growth or only coliform bacilli following the cessation of drug therapy, again became positive for the Sonne organism. Additional drug therapy was not given and both patients made an uneventful recovery. In both cases rectal cultures became consistently negative fourteen days after their respective relapses.

TABLE 3.—*Comparison of Control and Sulfathiazole Treated Groups*

Group	Number	Average Age, Years	Duration of Fever, Days *	Duration of Diarrhea, Days	First Negative Culture, Day
Control	17	13.8 ± 2.6†	1.3 ± 0.2	2.9 ± 0.4	19.7 ± 3.7
Sulfathiazole treated	27	11.0 ± 1.3	1.0 ± 0.1	1.5 ± 0.2	33.9 ± 4.4

* 100 F. or higher. † Standard error.

During the study of healthy contacts in the institution, as well as the new admissions, 13 carriers of Bacterium sonnei were discovered. Ten of these harbored

8. Davison, W. C.: A Bacteriological and Clinical Consideration of Bacillary Dysentery in Adults and Children, Medicine **1**: 389 (Nov.) 1922.

9. Quinlivan, J. J.: Milk-Borne Bacillary Dysentery: Report of an Outbreak in New York State, New York J. Med. **40**: 1027 (July 1) 1940.

10. Fyfe, G. M.: Milk-Borne Sonne Dysentery, J. Hyg. **26**: 271 (Aug.) 1927.

11. Cooper, M. L.; Zucker, R. L., and Wagoner, Stewart: Sulfathiazole for Acute Diarrhea and Dysentery of Infants and Children, J. A. M. A. **117**: 1520 (Nov. 1) 1941. Anderson, E. V.: The Chemotherapy of Infectious Diarrhea with Sulfathiazole, J. Pediat. **18**: 732 (June) 1941.

the epidemic strain while 3 (the new admissions from the community) harbored a strain which differed from the epidemic strain by being rapid rhamnose fermenters.

Six of the carriers were treated with 3 Gm. of sulfaguanidine [12] a day for seven days, therapy being instituted within forty-eight hours after the first positive culture had been obtained. All but 1 remained well and failed on subsequent weekly cultures to show the dysentery organism, although they were followed for several months. The six, a carrier of the epidemic strain, received the usual dose of sulfaguanidine for seven days. Rectal cultures taken on the last day of therapy showed no bacterial growth on MacConkey's medium. Five days after the cessation of drug therapy, the clinical picture of dysentery developed with fever, diarrhea and vomiting. A rectal culture at this time was positive for the Sonne organism. He was treated with sulfathiazole and recovered clinically in forty-eight hours. Rectal cultures, however, remained positive for almost two months. This case is included with the sulfathiazole treated group.

That the sulfaguanidine contributed significantly to the clearing of the carrier state is doubtful in our cases because of the essentially similar course followed by the group of carriers that received no drug therapy. Of the 7 subjects in this group, 6 failed to show subsequent positive cultures after the organism was initially discovered, although rectal cultures were performed for almost two months. The seventh had consistently positive stool cultures for five weeks. At the end of this period he was given a similar course of sulfaguanidine. Subsequent positive cultures were not found following therapy.

The interesting feature of this phase of the study is the frequent occurrence of relatively short periods during which healthy carriers may harbor the dysentery organisms and thus serve as potential sources for the spread of the disease if not isolated. That the epidemic was spread in the institution by means of temporary carrier states in the relief personnel is not unlikely. Whether the prolonged carrier states would be benefited by sulfaguanidine remains to be seen. A recent study by Rantz and Kirby [13] suggests that this may be the case. In that study, however, the organism isolated was identified as Shigella alkalescens.

An interesting observation was made in one of the uninvolved cottages during the latter part of the epidemic. Six hours after a lunch at which spaghetti and tomato sauce were served, 15 out of a total of 40 girls had severe cramps, diarrhea and vomiting; only a few had an elevation in temperature. Recovery was complete in from six to twelve hours. Bacterium sonnei, the epidemic strain, was isolated from a sample of the spaghetti. None of the affected children showed this organism in their stools, and a careful search failed to reveal any carriers among the personnel or unaffected inmates. Presumably contamination occurred prior to the cooking, which destroyed most of the viable organisms. One may speculate that a heat stable toxin may have been liberated from the organisms. The fact that the organisms were present in sufficient numbers so that they could be isolated from a random sample of the sphaghetti is probably explained by the interval of time that elapsed between the serving of the food and the subsequent examination which allowed the few remaining organisms to proliferate. Dysentery bacilli have been incriminated previously as a cause of food poisoning.[14] The difficulty in tracing the source of these contaminations is well demonstrated by this experience.

12. Lederle Laboratories, Inc., New York, supplied the sulfaguanidine used.

13. Rantz, L. A., and Kirby, W. M. M.: The Use of Sulfaguanidine in the Treatment of Dysentery Carriers, J. A. M. A. **118:** 1268 (April 11) 1942.

COMMENT

Reports from Norway,[15] Denmark,[16] Scotland,[17] Germany,[18] Canada [19] and this country [20] indicate that Bacterium sonnei is the most frequent cause of dysentery in temperate climates. It has also been demonstrated that healthy carriers represent the most common means of spreading bacillary dysentery.[21] The actual method of spread is usually the contamination of food, milk and water. Although it is not possible definitely to trace the source of the epidemic described here or the means of spread to three widely separated cottages, the frequent demonstration of relatively short carrier states in many of the healthy inmates makes it likely that the floating relief personnel might thus be implicated.

As previously noted, the clinical course of the disease in the control group was relatively mild. The routine use of sulfathiazole in the experimental group was primarily directed toward the possibility that by this means the carrier state following recovery from the disease might be considerably shortened and thus reduce the necessary period of isolation. Unfortunately this did not prove to be the case. Actually the Sonne organisms were demonstrated for much longer periods of time in the drug treated group than in the untreated controls. The complete isolation, or quarantine, of recovered cases is from a practical standpoint very difficult, especially with young children in an institution. It is apparent, therefore, that the prolongation of the carrier state might add considerably to the problems of epidemic control under these conditions. While we were able to confirm the definitely beneficial effect of sulfathiazole on the clinical course of the disease, the adverse effect on the epidemiologic control should be appreciated. As a rule, dysentery caused by the Sonne organism is a relatively mild disease. It would appear from this study that the routine use of sulfathiazole in institutional epidemics is not desirable. Its use, however, in selected cases is of undoubted value and a distinct contribution to the treatment of dysentery.

From an epidemiologic point of view, the observation that, following the use of sulfathiazole, the bacteriostatic effect of the drug may mask the presence of the dysentery organism should be stressed. In our cases, positive cultures reappeared as late as three weeks after the cessation of therapy. It would appear desirable to continue isolation for at least this period of time before negative stool cultures are considered significant.

14. Topley, W. W. C., and Wilson, G. S.: The Principles of Bacteriology and Immunity, ed. 2, Baltimore, Williams & Wilkins Company, 1936, pp. 1258 and 1266.

15. Thjøtta, T. L.: On the Bacteriology of Dysentery in Norway, J. Bact. **4:** 355 (July) 1919.

16. Bjølen, K.: Dysentery in Denmark, Bianco Lunos Bogtrykkeri A/S, Copenhagen, 1934.

17. Fraser, A. M.; Kinloch, J. P., and Smith, J.: Sonne Dysentery in Aberdeen, J. Hyg. **25:** 453 (Nov.) 1926.

18. Roelcke, K., and Neuberger, M.: Statistics on Kruse-Sonne (E) Dysentery, the Infectious Intestinal Disease Most Prevalent in Germany, München. med. Wchnschr. **88:** 643 (June 6) 1941; abstr. J. A. M. A. **117:** 2105 (Dec. 13) 1941.

19. Wilson, R.: Sonne Dysentery In and About Vancouver, Canad. M. A. J. **43:** 144 (Aug.) 1940.

20. Silverman, D. N.: A New Method of Diagnosis in Bacillary Dysentery, J. A. M. A. **109:** 1024 (Sept. 25) 1937.

21. Godfrey, E. J., and Pond, M. A.: A Hospital Epidemic of Flexner Dysentery Caused by Contaminated Ice, J. A. M. A. **114:** 1151 (March 30) 1940.

CONCLUSIONS

In an epidemic of dysentery caused by Bacterium sonnei a method for obtaining rectal cultures yielded positive results in 43 of the 44 persons affected at the initial examination.

The use of sulfathiazole was associated with more rapid clinical recoveries as compared to the control group. However, in the former group there was a significant prolongation of the time required before the rectal cultures became consistently negative. Moreover, relapses occurred at varying intervals following chemotherapy, a complication that did not occur in the untreated group.

THE JUVENILE DIABETIC PATIENT SURVIVING TWENTY YEARS

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ST. LOUIS

My purpose in this paper is to describe the physical, economic and social status of the juvenile diabetic patient surviving twenty years or more after the onset of the disease and to point out to the physician what he must look for, but not necessarily expect, in the life course of the diabetic child with onset of diabetes before his fifteenth year. The paper presents data on the first series of this kind to be reported. The data should present the most unfavorable picture which one will ever encounter in diabetes of this age group and duration, because the children in the report lived in the preinsulin era at the time of the onset of the disease.

INCIDENCE

As shown in table 1, 1,685 juvenile diabetic patients were seen in this clinic between 1898 and March 1, 1942; of these, 1,363 were alive in 1941. Three hundred and twenty-two are dead, and 180 of these fatalities occurred before the use of insulin in 1922.[1] Of the total number of juvenile patients (1,685), 30 per cent had diabetes less than five years, 25 per cent between five and ten years, 25 per cent between ten and fifteen years and 15 per cent between fifteen and twenty years.[2]

Seventy-three patients with diabetes of twenty years' duration (i. e. until March 1, 1942) are the subject of report in this paper; they are 4.5 per cent of the 1,685 patients. Of the total number of patients (1,685) there were only 271 with onset prior to March 1922 and therefore eligible for a twenty year survival, and the 73 cases constitute 27 per cent of this figure. Among the juvenile diabetic patients with onset before March 1922 there were but 103 alive on that date, and the 73 represent 72 per cent of this number—a remarkable figure and far in excess of what one might expect.

The incidence and duration of juvenile diabetes in this series are divided into groups according to years of survival (five year periods). More striking, however, are the data for survival within relatively short periods comprising the eras of Naunyn, Allen, Banting and Hagedorn. Duration of life for the juvenile diabetic patient in the earliest era was measured in periods of days or weeks and for those in the Allen era usually in one to two years, but as many as 72 of the 103 who were alive in March 1922 survived until the use of insulin was begun and 71 of these are alive today. Two members of this series have survived twenty years but are not living today; 1 died at the age of 29 with septicemia following an infection of the upper respiratory tract, and the other, with a history of onset in 1886 at the age of 8 years, died in coma twenty-nine years later, in 1915. The latter patient is the only 1 of the 73 with onset of diabetes prior to the year 1914.

The 73 juvenile patients are divided nearly evenly according to sex, 55 per cent being males. The average age at onset of the diabetes for this group is for the males 9.0 years and for the females 8.7 years. The youngest member of the group developed the disease at 1 year and 7 months and is now 21 years old; the oldest is 41; both are males. Of the entire group, 1 is living in the fifth decade of life; 39 are in the fourth decade and 31 in the third decade.

The average duration of the disease is 21.9 years, which means that the average patient of this group was without insulin 2.8 years of his diabetes, if one figures that insulin became available to most of these patients by January 1923.[3] The highest incidence of a positive hereditary history (save in homologous twins, in which it is 63 per cent) is in the group of this age and duration; namely, 62 per cent. The proportion of the Jewish population in this series is 10 per cent, which is approximately equal to that among all of the juvenile diabetic patients.

TREATMENT

Treatment with insulin is divided among the 71 living patients today, so that 69 are taking an average of 52 units of insulin of either single or combined types. Twenty-five use regular or crystalline insulin alone (average 47 units), 12 use protamine zinc insulin alone (average 47 units), 31 use combined protamine zinc and crystalline insulin (average 13 units of crystalline insulin plus 47 units of protamine zinc insulin) and 1 takes 60 units of globin insulin.

The majority, 51, are on weighed diets; 20 are on free diets by their own choice, but few if any take indiscriminately foods high in carbohydrate value.

Two patients who are taking no insulin at all are under observation because of the possibility of a "cure" or "remission" of the disease. One was first seen in this clinic in 1922 at the age of 16, two years after the onset of her diabetes. Her family physician reported a blood sugar value of 340 mg. per hundred cubic centimeters, a large amount of urinary sugar and a Van Slyke plasma carbon dioxide determination of 22 volumes per cent; this was associated with an infection at the age of 14. Two years later her blood sugar tolerance curve was not diagnostic of diabetes, and her urine contained 1.3 per cent sugar. She was put on a restricted diet, and in repeated examinations of her blood since her first visit the blood sugar value has at times been elevated but never high enough for a diagnosis of diabetes. The second patient with a question of a "cure" is a 39 year old man who had shown glycosuria intermittently since the age of 14 and because of an abnormal blood sugar curve was denied insurance;

Dr. Eisele was fellow in the George F. Baker Clinic, New England Deaconess Hospital, Elliott P. Joslin, M.D., Medical Director.

1. The date on which the first patient, an adult, in this clinic received insulin was Aug. 7, 1922.

2. A detailed analysis of the complications and treatment of 150 juvenile diabetic patients of this series who had survived fifteen years of diabetes in 1939 has been given (Joslin, E. P.; Root, H. F.; White, Priscilla, and Marble, Alexander: The Treatment of Diabetes Mellitus, ed. 7, Philadelphia, Lea & Febiger, 1940, p. 687). For the accumulation of much of the data presented in this paper I am indebted to Dr. Priscilla White.

3. Of these children only 23 received insulin in this clinic prior to March 1923.

this brought him to the clinic in 1938. A dextrose tolerance test afforded a comfortable diagnosis of diabetes mellitus, and he was placed on a moderately restricted diet. At present the sugar tolerance curve is not diagnostic for diabetes; the highest blood sugar level was 160 mg. per hundred cubic centimeters following 100 Gm. of dextrose when fasting.

PHYSICAL STATUS

The gross physical development of the diabetic child plays a major role in the complications of this disease, and in this group 13 persons, 1 out of 6, were classified some time during their lives as dwarfs; almost twice this number fell in the category of infantilism. Treatment consisted of pituitary and thyroid supplement; however, the first treatment began late in adolescence, and some of these retain juvenile proportions. The gross physical status today is described in table 2.

COMPLICATIONS

Further tabulation of the physical findings reveal that 35 per cent have an enlarged liver.[4] The criterion for such a diagnosis is a liver palpable 3 fingerbreadths below the costal margin in the midclavicular line. Thirty per cent of those examined showed evidence of arteriosclerosis at an average age of 29, as demonstrated by x-ray examination of the extremities. At present, one half of these patients showing peripheral arteriosclerosis have albuminuria and blood pressure greater than 150 systolic and 90 diastolic. Ocular lesions are common, and 55 per cent of those examined have moderate to advanced retinal arteriosclerosis; 42 per cent show hemorrhages and 32 per cent exudates; 16 per cent have ocular cataracts. The blood pressure is greater than 150/90 in 20 per cent of the group. If one considers together all the patients with demonstrable arteriosclerosis, either retinal or peripheral or both, 70 per cent of them have findings indicating more advanced cardiovascular-renal changes, as indicated by the presence of either hypertension or albuminuria or both.

Diabetic coma has appeared at least once in 21 of the 73 patients. One patient has been in coma sixteen times. Psychiatric problems are classified under two main headings, psychoneurosis and depression. There are 5 patients with the first condition and 3 with the second. Each of the 3 with mental depression has made at least one attempt at suicide. Infections include chiefly cutaneous lesions in the form of carbuncles or abscesses, and one third of this group have been afflicted at some period. Lesions of the teeth or gums very infrequently offer serious complications; 85 per cent have dental caries and 45 per cent have pyorrhea. Other lesions and complications, representing 1,553 diabetic years, may be listed: peripheral neuritis 7, retinitis proliferans 2, atrophy of the optic nerve 2, necrobiosis lipoidica diabeticorum 1, calcinosis 1, pleurisy 1, chronic glomerular nephritis 2, mastoiditis 1, nocturnal diarrhea 1, asthma 1, osteomyelitis 1, intermittent claudication 1, ovarian cyst 1 and active recent pulmonary tuberculosis 1. That more of these patients with juvenile diabetes of long duration do not harbor tuberculous infections does not indicate that contrary to the rule they are relatively resistant to the acid fast organism but implies that these particular ones have survived merely because they have been fortunate enough to escape tuberculosis.

Operative procedures have been done with little if any increased hazard, and they have included removal of tonsils and adenoids, excision of pilonidal cyst, five cesarean sections, four appendectomies, a spinal fusion, mastoidectomy, removal of a rectal polyp, a low leg amputation and a low thigh amputation.

TABLE 1.—*Status of Diabetic Children Seen Between 1898 and March 1, 1942*

	Total	Living	Dead
Naunyn era, 1898-1914	84	0	84
Allen era, 1914-August 1922	206	81	125
Banting era, August 1922-December 1935	951	845	106
Hagedorn era, January 1936-December 1941	444	437	7
Totals	1,685	1,363	322

TABLE 2.—*Gross Physical Status of Juvenile Patients Surviving Twenty or More Years*

	Height			Weight		
	Least	Greatest	Average	Least	Greatest	Average
Female	4 ft. 10 in.	5 ft. 9 in.	5 ft. 4 in.	100 lb.	155 lb.	127 lb.
Male	5 ft. 1 in.	6 ft. 1 in.	5 ft. 7½ in.	106 lb.	173 lb.	146 lb.

EDUCATION

The educational achievement is probably the most striking feature brought out in this study. College was attended by 31 of the group (42 per cent) and 4 have gained academic honors as measured in terms of awards, honorary degrees or membership in scholastic fraternities. These figures are remarkable in view of the fact that only 7 per cent of Americans 21 years of age and over in 1934 had attended college.[5] Evaluation of the figures for this group, of course, must be made in the light of the patients' financial, familial and environmental circumstances. This group may be divided into four economic categories which probably best connote the most important influences for advancement and survival: (1) the distinctly wealthy, in which there are 10 members, 80 per cent of whom attended college, (2) the professional and those with moderate incomes, 28 members, 53 per cent of whom attended college, (3) those with low incomes, 13 members, 30 per cent of whom attended college, and (4) the underprivileged, 22 members, 18 per cent of whom attended college.

ECONOMIC AND SOCIAL STATUS

Utilizing the same classification and division of patients of this series, one sees that the control of diabetes parallels the economic level, as may be surmised. The incidence of complications is highest in the underprivileged group and lowest in those who are from wealthy families. However, there are individual exceptions; some in the lowest income group show little or no complications, while others in the upper brackets show moderate to fairly advanced complications.

The economic and social status of these juvenile diabetic patients is important, as far as the treatment is concerned, both to the patient and to the physician. The occupations which they follow for a livelihood are certainly as extensive and varied as those of any group of nondiabetic patients. The list includes merchants, secretaries, laborers, an artist, clerks, housekeepers, salesman, a comptometer operator, an accountant, a teacher, a journalist, a comparison shopper, a medical

4. The further analysis of causes and treatment of hepatomegaly is given by Joslin, Root, White and Marble: Treatment of Diabetes Mellitus,[3] p. 472.

5. Personal communication from U. S. Office of Education.

student, a lawyer, a cashier, an electrical engineer, an advertisement agent, a reporter, a merchant marine radio operator and laboratory technicians.

Married members of this group number 30; 13 are men, 17 are women. Two persons are twice married. There are a total of 35 living and, as far as we know, healthy children from this group; 16 of these are children of 10 juvenile diabetic women, 3 of whom had clinical toxemia of pregnancy. Two children are known to have congenital anomalies, one hydrocephalus and the other syndactilism. These figures for congenital anomalies are probably low, however, in view of the known high occurrence of such conditions in offspring of diabetic patients.

CONCLUSIONS

Bearing in mind that all these 73 juvenile patients developed diabetes before insulin became available and accordingly present physically the worst possible end results for this age group and duration, certain conclusions are permissible:

1. The most important complication is the early appearance of arteriosclerosis. Thirty per cent of the members of this series who were examined roentgenologically showed peripheral arteriosclerosis; 55 per cent showed moderate to advanced ocular arteriosclerosis. Seventy per cent of the patients showing these changes have either hypertension or albuminuria or both at an average age of 29 years.

2. Impaired physical development in childhood occurred in 16 per cent of this series. With present day diabetic control and endocrine therapy this problem becomes much less acute than formerly. The physical status of the average adult in this series appears favorable even though active supplementary endocrine treatment in addition to insulin was started relatively late in the development of those physically retarded. The average male adult weighs 146 pounds (66.2 Kg.) and stands 5 feet 7½ inches (171 cm.); the average woman weighs 127 pounds (57.6 Kg.) and stands 5 feet 4 inches (163 cm.).

3. Sex does not influence survival. The disease was hereditary in 62 per cent. Mental maladjustments are somewhat greater in the juvenile diabetic patient than in the nondiabetic person of this age.

4. Infection has played a relatively minor role. Operative procedures may be done with little increased hazard over that in a nondiabetic group.

5. Like the older patient, with onset of diabetes in adult life, the juvenile diabetic patient has a constantly improving outlook for life and good health with the present day method of diabetic control and refined medical and surgical treatment.

6. The educational achievement of those who make up this series is probably the most striking feature brought out in the study: 42 per cent have attended college, as compared to 7 per cent of the population of the continental United States who are 21 or more years of age. The positions attained in economic and social life are not materially different from those in a similar group of persons of this age who do not have diabetes.

7. A woman's chance for a healthy child after twenty years of diabetes with onset in childhood is becoming increasingly more favorable.

OCULAR CHANGES IN YOUNG DIABETIC PATIENTS

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Ocular complications of diabetes mellitus are believed to be extremely rare in patients under 35 years of age. In fact, until recently ophthalmologists were under the impression that one never encountered diabetic retinopathy in these younger persons. It is now recognized that cataract is not infrequently seen in children and young adults with this common metabolic disease. Also changes in refraction are common, especially at times when the blood sugar concentration is changing rapidly. As proof that diabetic retinopathy is not so rare as generally believed, studies of the fundi of 555 young patients with diabetes revealed 23 with retinal pathologic change which was apparently due to that disease alone. Also in an additional survey of 260 young diabetic patients 43 were found to have lens changes of the type known to occur with this disease. In our experience there are two very rare ocular complications of diabetes, namely lipemia retinalis and lowered intraocular tension accompanying acidosis.

TABLE 1.—*Lens Changes in 260 Diabetic Patients Under 21 Years of Age*

Diabetic cataract	36
Congenital lens changes	191
Punctate opacities	183
Vogt's coronary cataract	6
Other types	2
Traumatic cataract (unilateral)	1
Congenital pigment dots on lens	12

DIABETIC RETINOPATHY

Twenty-three cases of diabetic retinopathy were encountered in a survey of the fundi of 555 diabetic patients under the age of 31 years. This is an incidence of 4 per cent (table 2). In the majority of these cases the retinal lesions consisted of hemorrhages and degenerative areas similar to those found in early cases of diabetic retinopathy in older patients. The hemorrhages usually were punctate, but occasionally they were of the small striate variety. Both types occurred most frequently in the perimacular region or in the region of the temporal vessels. Small, hard, waxy, yellowish white areas of degeneration were seen in the central portion of the fundus in 10 cases, and cotton wool patches were observed along the course of the temporal vessels in 7 cases.

In 6 of the 23 cases of retinopathy the changes were transitory; they were observed after a period of six months to one year of poor control and disappeared within one to two months after strict control was instituted. Four of these patients showed only punctate hemorrhages, 1 was found to have edema of the nerve heads and hemorrhages, and the last exhibited cotton wool patches and hemorrhages.

Additional findings were noted in 3 cases. An 11 year old girl, the subject of a previous report by Allen

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and Howard,[1] had not only retinal hemorrhages but a well developed lipemia retinalis. Another patient, a 14 year old girl, had retinal hemorrhages and later developed edema of the nerve heads. This child had had diabetes for eleven years and control had never been good, but in the year preceding the development of the fundus condition management had been neglected. Complete medical and neurologic examinations failed to reveal any other cause for the retinopathy, and ophthalmoscopic examination made after three months of rigorous control revealed normal fundi. A third patient, a 22 year old man with chronic mastoiditis and peripheral neuritis, gave a history of diabetic symptoms of four years' duration without treatment. Ophthalmoscopic examination disclosed many punctate and several striate hemorrhages and a few cotton wool patches in each fundus. After nine months of poor control, reexamination of the fundi revealed numerous hemorrhages, occlusion of the central retinal vein in the left eye and a proliferating retinopathy in both eyes. in coma with a blood sugar of 633 mg. per hundred cubic centimeters. The fundi showed punctate hemorrhages, areas of hyaline degeneration and a few cotton wool patches. Later hypertension developed and there was albumin in the urine. Eventually edema of the nerve heads and retina appeared in each eye; also many punctate hemorrhages and areas of hyaline and cytoid degeneration were seen.

DIABETIC CATARACT

In 1934 O'Brien, Molsberry and Allen[2] reported the incidence of lens changes in diabetic patients under 33 years of age as 16 per cent. The present study of cataracts in association with diabetes was made on 260 consecutive patients under 21 years of age. As in the previous survey,[2] the patients were observed at intervals of three or four months over a period varying from two to eight years, and diabetes was considered to be the cause of the lens changes only in those cases in which the opacities were of the snow-

TABLE 2.—*Fundus Changes in 555 Diabetic Patients Under 31 Years of Age*

						Retinal Lesions					Urine				
No.	Name	Age	Sex	Duration of Diabetes	Control	Hemorrhages	Cotton Wool Patches	Hyaline Degeneration	Lens Changes	Blood* Sugar	Sugar	Albumin	Acetone	Diacetic Acid	Blood Pressure
1	A. S.	11	♀	8 yrs.	Fair	O. U.	.....	.....	.....	...	4+	0	1+	1+	115/75
2	M. N.†	11	♀	5 mos.	Poor	O. S.	.....	.....	.....	335	4+	0	3+	3+	110/68
3	D. F.‡	14	♀	11 yrs.	Poor	O. D.	.....	.....	.....	366	4+	0	0	0	105/70
4	G. L.	15	♂	13 yrs.	Fair	O. U.	.....	.....	.....	190	1+	0	0	0	110/72
5	D. M.	18	♀	3 yrs.	Poor	.....	.....	O. S.	Coronary	266	4+	0	0	0	120/80
6	P. W.	18	♂	7 mos.	Poor	O. U.	O. U.	.....	Diabetic	349	4+	0	0	tr.	123/90
7	W. R.	19	♂	7 yrs.	Poor	O. U.	O. U.	.....	Coronary	490	4+	0	0	0	117/75
8	C. L.	19	♀	7 yrs.	Poor	O. U.	O. S.	O. U.	.....	600	4+	0	1+	1+	130/84
9	W. L.	19	♀	5 yrs.	Fair	O. U.	.....	.....	Diabetic	1000	4+	0	1+	1+	110/74
10	V. H.	20	♀	12 yrs.	Poor	O. U.	.....	.....	.....	286	4+	0	0	0	120/80
11	E. H.	22	♂	8 yrs.	Poor	O. U.	.....	O. U.	.....	630	4+	0	0	0	118/76
12	M. J.	22	♂	13 yrs.	Poor	O. U.	.....	.....	Diabetic	328	4+	0	4+	3+	130/90
13	W. N.§	22	♂	4 yrs.	None	O. U.	O. U.	.....	Diabetic	231	4+	0	0	0	132/78
14	K. M.	22	♀	10 yrs.	Poor	O. U.	.....	O. U.	.....	392	4+	0	2+	2+	105/85
15	M. B.	23	♂	11 yrs.	Poor	O. U.	.....	O. U.	.....	231	3+	0	0	0	120/85
16	M. G.	23	♂	3 mos.	None	.....	.....	O. U.	.....	289	4+	0	2+	0	120/80
17	R. S.	26	♂	10 yrs.	Fair	O. U.	.....	O. D.	.....	420	2+	0	0	0	130/70
18	L. L.	26	♀	10 yrs.	Fair	O. U.	.....	O. U.	.....	393	4+	0	0	0	110/86
19	F. F.	26	♀	9 yrs.	Fair	O. U.	.....	O. U.	Diabetic	316	4+	0	1+	1+	120/70
20	H. W.	28	♀	13 yrs.	Fair	O. U.	O. U.	.....	.....	242	3+	0	0	0	115/78
21	W. H.	29	♂	20 yrs.	Fair	O. U.	O. S.	.....	.....	500	2+	tr.	0	0	120/70
22	D. S.	29	♂	18 yrs.	Fair	O. U.	.....	.....	.....	281	4+	0	2+	2+	128/88
23	G. I.	30	♂	13 yrs.	Poor	O. U.	O. S.	O. U.	.....	231	2+	0	0	0	130/80

Kidney function was normal in all cases.
† Lipemia retinalis.
§ Thrombosis of central vein, left eye; Proliferative retinitis, both eyes.
* In milligrams per hundred centimeters on admission.
‡ Choked disk.

Repeated general examinations disclosed no other cause besides diabetes; the blood pressure varied between 112 systolic and 68 diastolic and 132 systolic and 78 diastolic, and kidney function tests were normal.

In addition to the 23 cases of diabetic retinopathy, 2 young diabetic patients who also suffered from hypertension and nephritis were found to have advanced retinal pathologic changes. In one of these, a 20 year old girl who had had diabetes for seventeen years, the blood pressure was elevated and the urine contained albumin as well as sugar. The fundi showed punctate hemorrhages and areas of hyaline degeneration in the macular regions. This patient's general condition and her eyes gradually grew worse until at the end of one year the vision was 6/60 in both eyes and the fundi showed advanced neuroretinopathy—the nerve heads and surrounding retina were edematous, the arteries were reduced in caliber, the veins were engorged, beaded and tortuous, and there were many retinal hemorrhages and areas of hyaline and cytoid degeneration. The other patient, a 21 year old man, had been diabetic for thirteen years. He was admitted

flake or the subcapsular varieties and in which there was definite increase in the opacities.

In this group of 260 patients there were 36 with diabetic lens changes, an incidence of 13.8 per cent (table 1). In 3 patients the cataracts required extraction and in 10 others the lens changes resulted in some loss of visual acuity. In each case in which diabetic cataracts were found the diabetes had been poorly controlled or uncontrolled for several months or years preceding the development of lens changes. In 6 cases the lenses were clear when first examined but on reexamination, after periods of one to two years of poor control or noncontrol, snowflake opacities or fine subcapsular plaques were observed. In these cases rigorous control was instituted and, although some increase in the number of opacities was observed for a few months, further increase was not seen after six months. In 5 other cases arrested development of opacities was observed after six months of strict control. However, in 7 cases adequate control of the diabetes could not be obtained at home and the number of lenticular opacities has continued to increase.

1. Allen, J. H., and Howard, W. A.: Lipemia Retinalis, Am. J. Ophth. **19**: 645-648, 1936.

2. O'Brien, C. S.; Molsberry, J. M., and Allen, J. H.: Diabetic Cataract, J. A. M. A. **103**: 892-896 (Sept. 22) 1934.

CHANGES IN REFRACTION

Several authors have reported transitory changes in refraction in young diabetic patients. These have been manifested by the development of a relative myopia during periods of poor control and the development of a relative hyperopia during reduction of the blood sugar level with insulin. In 12 patients ranging from 8 to 28 years of age, previously untreated, the authors did daily refractions under scopolamine for ten to fourteen days after the institution of insulin therapy. A relative hyperopia of 1.00 to 3.00 diopters developed within three to five days after insulin was begun but disappeared within seven to ten days.

COMMENT AND CONCLUSIONS

Certainly the most interesting and striking feature of this study of the eyes in younger diabetic patients is the incidence of retinopathy: 4 per cent in a series of more than 500 cases. The retinal disorder must be attributed to the diabetes, since it has the same appearance as that occurring in older patients and it is seen in those in whom no other disease can be found. It is a foregone conclusion that such ocular changes were not observed a few years ago. This is probably due to the fact that until recently young people with diabetes lived a comparatively short time. At present, while we do not cure diabetes, the control of the disease is infinitely better and the patients live much longer; therefore the retinal changes have a chance to develop.

As far as lens changes are concerned, this study only confirms the fact that diabetic cataract is comparatively common—in this study an incidence of almost 14 per cent in 260 patients under the age of 21 years.

ABSTRACT OF DISCUSSION

DR. GLEN GREGORY GIBSON, Philadelphia: Drs. O'Brien and Allen have again called attention to the ever increasing responsibility which ophthalmologists must assume in the field of internal medicine. In view of the relatively rapid progressive changes which are occurring today in the practice both of internal medicine and of ophthalmology, it becomes necessary that we assume an equally progressive point of view when the evidence is sufficiently convincing to warrant it. This paper is the result of the combination of progress in internal medicine in the form of the treatment of diabetes by insulin and careful clinical research in medical ophthalmology over a period of many years. The section is fortunate in having these authors bring to us the benefits of their extensive experience and studies in this most important subject. They stressed the increasing incidence of diabetic retinopathy in the younger persons, and I am in complete accord with their findings and explanation of these changes in the retinas of young persons with diabetes. It seems that this paper, in addition to many other excellent contributions by other authors, would once and for all put an end to that school of thought which denies the existence of a specific retinopathy that is pathognomonic of diabetes mellitus. Diabetic retinitis rather conveniently divides itself into a working classification of the well known central punctate type, the diffuse type, the mixed diabetic and hypertensive type and the venous type, any one of which may progress to retinitis proliferans and any one of which is usually sufficiently characteristic to permit an ophthalmoscopic diagnosis of diabetes. The case histories in this paper include examples of each of these types of retinopathy. It is well known that the conditions under discussion are not only resistant to treatment but, even under an adequate diabetic regimen as we know it today, are particularly prone to be progressive. Therefore it is encouraging to learn that in 6 of their 23 cases the retinopathy was transitory. This is consistent with the claims of our diabetic department that these retinal changes do not develop in the cases which are recognized sufficiently early and in which cooperation in the medical regimen is adequate. This would tend to increase our interest in demanding adequate medical management of these cases, particularly the early ones. The authors have also found evidence of the other well known ocular complication of diabetes in their younger patients, such as lipemic retinitis, hypotension, refractive changes and cataracts. Our experience has been similar with the exception of the incidence of cataracts in these young diabetic patients. In spite of careful search for these changes, we have been unable to detect them in any such frequency as they report in two series, namely 16 and 13.8 per cent. This paper has been of real value because it calls attention to the necessity of careful study of the younger as well as older diabetic patients and because it stresses the necessity of a rigid diabetic regimen for patients with this disease.

ARTERIOSCLEROSIS WITH DIABETES MELLITUS

A STUDY OF THE PATHOLOGIC FINDINGS IN 193 DIABETIC AND 2,250 NONDIABETIC PATIENTS

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Diabetes mellitus is generally considered an influence in the production of arteriosclerosis. Joslin was one of the earliest believers in the relationship and has persistently stressed its seriousness. Root and his associates,[1] Warren[2] and Wilder,[3] among others, have presented abundant affirmative evidence. Our interest in the problem was to determine the extent and degree of arteriosclerotic changes in the diabetic patients who came to autopsy at New York City Hospital, Welfare Island, and note if our conclusions supported the present belief.

The material observed consisted of 193 patients with diabetes mellitus who came to autopsy between Jan. 1, 1928 and Dec. 31, 1941. Because the observations in a few of these cases were not complete, the figures in the subsequent data do not always correspond with the total number of cases observed. Only data on patients 40 years or over were included. Subdivisions were made relating to (1) coronary arteries, (2) aorta, (3) size of the heart, (4) state of the cerebral arteries, (5) presence or absence of arteriolar disease of the kidneys compatible with hypertension and (6) comparison of the visceral and peripheral arteriosclerotic changes in patients with amputations coming to autopsy. As a control we used the findings in approximately 2,250 nondiabetic patients who came to autopsy in the hospital during the same period.

Among the diabetic there were 87 men and 106 women. Although the great majority were white persons, there were a few Negroes. However, since race had no bearing on the findings, such a distinction was disregarded in the final analysis.

From the Pathological Laboratory and the Metabolic Service of the Medical Divisions, New York City Hospital, Welfare Island.

1. Root, H. F., and Graybiel, Ashton: Angina Pectoris and Diabetes Mellitus, J. A. M. A. **96**: 925 (March 21) 1931. Root, H. F., and Sharkey, T. P.: Arteriosclerosis and Hypertension in Diabetes, Ann. Int. Med. **9**: 873 (Jan.) 1936; Coronary Arteriosclerosis and Diabetes Mellitus, New England J. Med. **215**: 605 (Oct. 1) 1936. Root, H. F.; Bland, E. F.; Gordon, W. H., and White, P. D.: Coronary Atherosclerosis in Diabetes Mellitus, J. A. M. A. **113**: 27 (July 1) 1939.

2. Warren, Shields: Pathology of Diabetes Mellitus, ed. 2, Philadelphia, Lea & Febiger, 1938.

3. Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism, Philadelphia, W. B. Saunders Company, 1940.

The type of arteriosclerosis was no different in the diabetic patient than in the nondiabetic, and, furthermore, sclerotic changes of equal severity were found in both groups.

We have considered the possibility of error in our study. First, this hospital is a general hospital with no more than the usual incidence of diabetes (1.8 per cent). There is no emphasis put on this disease, and hence there is no greater search for arteriosclerosis in this group than in the controls. Furthermore, we have disregarded in our statistical comparisons any differences which may have arisen as a result of chance variation as determined by a common statistical test and have given full realization to the possibility of fallacious reasoning from percentages in those subdivisions with only a few cases.

PATHOLOGIC FINDINGS

In each of the subdivisions it was found that arteriosclerosis was more frequent in the diabetic than in the nondiabetic patients. Arteriosclerosis, however, is a disease associated with old age, making it necessary to adjust our percentages in consideration of any age differences which may exist in the composition of the two samples. This step assumes added significance in view of the fact that the average age in the diabetic group is 63, while that in the nondiabetic group is 61, two years less. As a further precaution the data were analyzed according to decennium of age. This served the added purpose of exposing any possible age relationship.

Considering coronary arteriosclerosis first, we noted that it was more frequent among those with diabetes than those without. In this group were analyzed the pathologic findings of 193 diabetic and 2,092 nondiabetic patients. As shown in table 1, the "corrected" frequency of arteriosclerosis among diabetic patients was

TABLE 1.—*The Frequency of Arteriosclerosis in Diabetic Persons Compared with That in Nondiabetic Persons*

	Number of Persons Studied		Patients with Arteriosclerosis: Number		Percentage: Crude		Percentage: Corrected *	
	Diabetic	Nondiabetic	Diabetic	Nondiabetic	Diabetic	Nondiabetic	Diabetic	Nondiabetic
Coronary arteries	193	2,092	138	1,252	72	60	70†	60†
Aorta	182	1,976	143	1,374	79	70	76	70
Cerebral arteries	51	557	33	313	65	56	56	56
Kidney	184	2,054	120	1,033	65	50	63†	50†
Cardiac infarction	138‡	1,252‡	42	280	30	22	33†	22†

* Corrected for differences in the age distribution of the two samples, using as a standard the age composition of the entire group of cases observed.

† These differences are significant by the chi square test, and the probability that they may be due to chance is very small.

‡ The patients studied in these groups all had arteriosclerosis.

70 per hundred, as compared with 60 per hundred among the nondiabetic patients. Among the diabetic patients with arteriosclerosis, moderate changes were found in 35 per cent and severe changes in the other 65 per cent, while among the nondiabetic patients with arteriosclerosis moderate changes occurred in 48 per cent and severe changes in 52 per cent (table 2). This attested the more severe nature of the arteriosclerosis in the presence of diabetes.

Division into ten year age groups brought out further evidence of the greater frequency of severe coronary arteriosclerosis among the diabetic than among the nondiabetic, and in tables 3 and 4 it may be seen that in all age groups severe coronary arteriosclerosis was more common among the diabetic patients.

TABLE 2.—*Comparison of the Severity of Arteriosclerosis in Persons With and Without Diabetes*

	Persons With Diabetes: Number	Persons With Diabetes: Per Cent	Persons Without Diabetes: Number	Persons Without Diabetes: Per Cent
Coronary arteries				
Involved	138	100	1,252	100
Severe	90	65	656	52
Moderate	48	35	596	48
Aorta				
Involved	143	100	1,374	100
Severe	90	63	620	45
Moderate	53	37	754	55
Cerebral arteries				
Involved	33	100	313	100
Severe	26	79	186	60
Moderate	7	21	127	40

Cardiac infarction with or without coronary thrombosis was next considered. There were 42 diabetic and 280 nondiabetic patients with cardiac infarcts. Since practically all of them had moderate or severe coronary sclerosis, our percentages describe the incidence of cardiac infarction in the group with coronary sclerosis. It will be seen that cardiac infarction also was more common in the diabetic patients (30 per cent versus 22 per cent). This is further evidence of the more serious nature of arteriosclerotic changes in the presence of diabetes.

In tables 3 and 4 it is seen that, although in both diabetic and nondiabetic patients the frequency of coronary arteriosclerosis increases as age advances, the incidence of cardiac infarction is not affected by age. At all ages, to be sure, its frequency was greater among the patients with diabetes.

The condition of the aorta was analyzed in 182 diabetic and 1,976 nondiabetic patients. The data closely resemble those for the coronary arteries, the aorta likewise showing a higher rate of sclerotic changes in the diabetic patient than in the nondiabetic one (76 per hundred versus 70 per hundred). This difference, however, may be due to chance, but in the groups with severe involvement the differences between the diabetic and the nondiabetic patients are significant.

The size of the heart was noted, but the data showed little of importance. The information was obtained from 178 diabetic and 2,104 nondiabetic patients. There were numerous hearts of comparatively low weights, but many of these came in the senile age period and were probably the result of senile atrophy.

The analysis of the cerebral arteries could, unfortunately, be based on only 51 diabetic and 557 nondiabetic patients. Differences between the two groups were statistically not significant and are therefore dismissed without further comment.

The kidneys were examined microscopically for the presence or absence of arteriolar sclerosis compatible with hypertension. No distinction was made between arteriolar nephrosclerosis and arteriolar disease found in cases of pyelonephritis. The analysis was based on 184 diabetic and 2,050 nondiabetic patients. Arteriosclerotic changes in the kidney compatible with hyper-

tension were much more common in the diabetic than in the nondiabetic patients ("corrected" rates 63 per hundred versus 50 per hundred), and greater frequencies existed at all ages for those with diabetes.

It was possible to compare the peripheral vascular tree and the visceral arteries in 17 diabetic and 9

TABLE 3.—*The Percentage Frequency of Arteriosclerosis in Diabetic Persons Compared with That in Nondiabetic Persons, by Specific Age Groups*

Age in Years	Coronary Arteries		Aorta		Cerebral Arteries	
	Diabetic	Nondiabetic	Diabetic	Nondiabetic	Diabetic	Nondiabetic
Severe Arteriosclerosis						
40-50	24%	15%	10%	10%	11%	18%
51-60	44%	25%	41%	22%	42%	28%
61-70	46%	37%	54%	36%	67%	43%
71-80	56%	43%	67%	49%	67%	42%
81-90	71%	60%	80%	68%	....	53%
91 and over	100%	67%	....	67%	....	56%
Moderate Arteriosclerosis						
40-50	33%	19%	50%	30%	11%	17%
51-60	20%	28%	33%	42%	8%	20%
61-70	31%	32%	32%	43%	11%	25%
71-80	20%	38%	10%	39%	25%	29%
81-90	14%	21%	....	25%	....	42%
91 and over	....	11%	....	22%	....	22%

Age in Years	Arteriosclerosis of the Kidneys Compatible with Hypertension		Cardiac Infarctions	
	Diabetic	Nondiabetic	Diabetic	Nondiabetic
40-50	46%	35%	33%	24%
51-60	60%	47%	31%	24%
61-70	71%	56%	36%	23%
71-80	74%	64%	21%	20%
81-90	71%	52%	33%	20%
91 and over	....	60%	....	14%

nondiabetic patients. Each of these had an amputation for peripheral occlusive disease. Two facts were evident. Amputations were done among the diabetic in practically equal numbers in the seventh and eighth decades, 8 and 7, respectively. Only two amputations were performed in the sixth decade, the 2 patients having severe cellulitis. In the nondiabetic group 8 of the 9 patients with amputations were in the seventh decade. The second observation was that almost without exception those with diabetes had arteriolar disease of the kidney compatible with hypertension (15 out of 17). Among the nondiabetic patients the opposite almost invariably held true. Of the 9 nondiabetic persons only 1 had arteriolar sclerosis. The degree of visceral changes was more closely parallel to the renal arteriolar sclerosis than to the peripheral vascular changes.

We have shown in a previous communication [4] that the peripheral sclerosis was of equal severity in diabetic and nondiabetic patients. The coronary and aortic sclerosis in the diabetic group was almost invariably severe, with only 2 patients having the moderate form and 1 who was normal. In the nondiabetic group they were about equally divided.

Our findings give us unquestionable evidence that, in general, arteriosclerosis is more common and more frequently severe in persons with diabetes than in those without. Hence we add further confirmation to the present belief that diabetes is a factor in the production of sclerotic changes in the arteries.

4. Lisa, J. R.; Magiday, Morton, and Hart, J. F.: Peripheral Arteriosclerosis in the Diabetic and the Nondiabetic: A Study of One Hundred and Six Amputated Legs, J. A. M. A. **118**: 1353 (April 18) 1942.

COMMENT

We must differ with Wilder in his statement that sclerotic changes occur no more frequently than usual in persons with diabetes. Our data unquestionably show that arteriosclerosis, especially in the severe form, appears more often in the diabetic patient at practically all ages. Under these circumstances we must disagree with his argument that an equal occurrence of arteriosclerosis proves that diabetes of and in itself is not a cause of arterial disease. We can nevertheless accept his suggestion that diabetes probably hastens the development and speeds the course of arterial changes.

We are unable to consider the effect of the degree of severity or the duration of the diabetes, as the records were incomplete in many of our cases. These factors were studied by Root and Sharkey, and because they found such a high incidence of coronary thrombosis in persons 70 years or over with mild diabetes of long duration they concluded that the duration of the diabetes meant more than the age of the patient or the severity of the disease.

From table 5 we must conclude that arteriosclerosis appears earlier in the diabetic than in the nondiabetic

TABLE 4.—*The Numerical Frequency of Arteriosclerosis in Diabetic Persons Compared with That in Nondiabetic Persons, by Specific Age Groups*

Age in Years	Coronary Arteries		Aorta		Cerebral Arteries	
	Diabetic	Nondiabetic	Diabetic	Nondiabetic	Diabetic	Nondiabetic
Severe Arteriosclerosis						
40-50	5	64	2	39	1	24
51-60	24	142	20	113	5	46
61-70	30	210	34	199	12	61
71-80	25	172	30	192	8	40
81-90	5	62	4	71	..	10
91 and over	1	6	..	6	..	5
Moderate Arteriosclerosis						
40-50	7	84	10	121	1	22
51-60	11	154	16	220	1	31
61-70	20	185	20	233	2	36
71-80	9	150	7	152	3	28
81-90	1	22	..	26	..	8
91 and over	..	1	..	2	..	2

Age in Years	Arteriosclerosis of the Kidneys Compatible with Hypertension		Cardiac Infarctions	
	Diabetic	Nondiacetic	Diabetic	Nondiabetic
40-50	10	148	4	36
51-60	31	258	11	72
61-70	43	318	18	91
71-80	31	247	7	63
81-90	5	56	2	17
91 and over	..	6	..	1

patients. The original series of 193 patients with diabetes and 2,092 without diabetes showed coronary involvements in 138 of the former and 1,252 of the latter.

In patients in the fourth decennium we found sclerotic changes in 57 per cent of those with diabetes. So high an incidence in the nondiabetic group was not reached until well into the fifth decennium, more than ten years later. Tables 3 and 4 present additional

evidence of the greater frequency of sclerotic changes, especially in the severe form, in the early ages of the diabetic patients. This tends to support the contention of Joslin that diabetes is a factor in the production of arteriosclerosis and that sclerotic changes will be produced at an earlier age in the diabetic than in the nondiabetic patient.

It is doubtful whether the higher incidence of, or earlier appearance of, sclerotic changes in the diabetic person can be attributed to any new factor. It seems more likely, whatever the factor or factors causing arteriosclerosis, that diabetes influences its development and severity. This possibility is further strengthened by the fact that we found no difference in the type of arteriosclerosis in the groups in this study or in an earlier investigation of the peripheral arteries.

TABLE 5.—*The Percentage Frequency of Sclerotic Changes by Age Groups*

Age	Arteriosclerosis	
	Diabetic Patients	Nondiabetic Patients
40-50	57%	34%
51-60	66%	53%
61-70	77%	69%
71-80	76%	80%
81-90	80%	82%
91 and over	100%	78%

SUMMARY AND CONCLUSIONS

Arteriosclerosis is more common in diabetic than in nondiabetic persons.

Arteriosclerosis is more frequently severe in diabetic than in nondiabetic persons.

Severe arteriosclerosis is more frequent among persons with diabetes at all ages.

Sclerotic changes in both the diabetic and the nondiabetic person increase in frequency as age advances, but among persons with diabetes a given frequency of these changes is reached about ten years earlier than among those without the disease.

Occlusive accidents in the coronary arteries occur with greater frequency among diabetic than among nondiabetic patients at all ages, but the frequency of such accidents is not correlated with age.

Arteriosclerosis of the kidneys compatible with chronic hypertension is more frequent among diabetic than among nondiabetic patients.

Peripheral arteriolar sclerosis necessitating amputation is of equal severity in persons with and without diabetes. It has no close relationship to visceral arteriosclerosis, but the severe visceral changes are much more frequent in diabetic persons.

At the Center of the Sun.—Atomic energy feeds the sun, consuming hydrogen and ending with helium, with carbon playing the part of go-between, said H. A. Bethe, professor of physics at Cornell University, in a Sigma Xi lecture at the Illinois Institute of Technology, March 25, 1942. The sun would last another thirty billion years if it continued to expend its energy at the present rate, but the sun becomes hotter and more extravagant as it eats up its hydrogen, and probably will not last more than ten billion years. The temperature at the center of the sun is 20 million degrees C. according to the theories of Eddington, Stromgren and others. Because of the high temperature, the nuclei which are the central cores of atoms with a diameter less than one ten-thousandth that of the atom are rushing about furiously, knocking each other to pieces and recombining to form a new atom or element, or an unstable nucleus may be formed and shortly blow up. On each of these occasions there is an evolution of energy in the form of radiation. It is this that feeds the sun.

Clinical Notes, Suggestions and New Instruments

SIMPLIFIED METHODS FOR THE ADMINISTRATION OF BLOOD PLASMA IN EMERGENCIES

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Normal human blood plasma is a satisfactory substitute for whole blood in the treatment of certain conditions, such as shock with or without hemorrhage, burns and the restoration and maintenance of body proteins, and in the emergency treatment of severe hemorrhage. It has the advantage of not undergoing progressive changes or requiring typing or cross matching.

The usefulness of blood plasma is enhanced when it is prepared in powder form by the lyophile process, for then it can be stored a long time without deterioration.

As available on the market, powdered blood plasma is packed in an ampule vial, accompanied by a bottle containing 250 cc. of sterilized distilled water. When the two are mixed they yield the original volume of the untreated blood plasma. This solution is effected by means of a double pointed connecting needle, one point of which is inserted manually through the stopper in the vial of distilled water and the other end through the stopper of the vial of plasma. Since the plasma is vacuum packed, the negative pressure of the vial draws in all the distilled water. In a few minutes the plasma is restored to the fluid state. The needle is then withdrawn from the stopper of the plasma vial.

To administer this restored plasma, the vial is inverted in a hollow canister so that its neck projects slightly from the bottom. The needle of an air filter assembly is then inserted diagonally through the rubber stopper of the vial, while the filter end is attached over the upper edge of the canister. The needle connecting the stylet of the intravenous equipment is inserted through the rubber stopper of the vial diagonally and in opposite direction to the air filter needle. The air is now displaced in the entire intravenous equipment. The intravenous needle is then ready to be inserted into the vein, the flow of the plasma being regulated by a screw clamp.

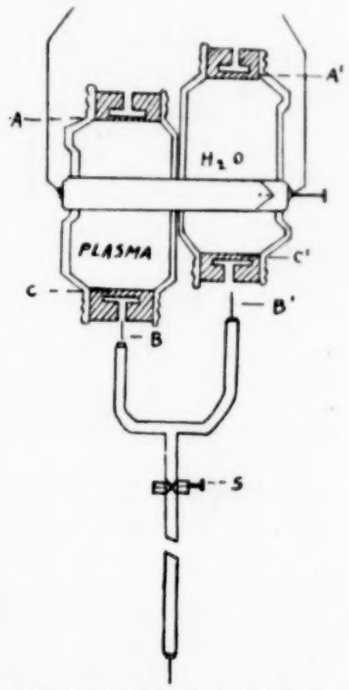

Fig. 1.—Suspend bottles by wire. Adjust water bottle to level desired with relation to plasma bottle. Shut screw clamp *S*. Mechanically introduce needle *B* through rubber stopper *C* and likewise needle *B'* through stopper *C'*. Let air into two bottles by mechanically puncturing stoppers *A* and *A'* with open needles, already in place. Water will enter plasma bottle causing plasma to dissolve. Let air escape from intravenous tube. Introduce needle into vein. Regulate flow by screw clamp *S*.

While it is simple to set up the apparatus in an operating room under strict aseptic conditions, it is not easy, as this brief description indicates, to do so under emergency conditions, as on a battlefield. There are too many parts to be adjusted, too many needles to be exposed and too much work to be done. Under adverse conditions it would be difficult to maintain sterility.

In order to simplify the procedure, I have devised an apparatus which eliminates much of the manipulation required by

the kind now in use. It consists of two bottles clamped together, as shown in figure 1. One contains sufficient powdered plasma to yield 250 cc. of fluid plasma when restored to its original volume, the other enough sterilized distilled water. The distilled water bottle is adjusted to a higher level. Each bottle has an additional outlet opposite the mouth, both outlets being sealed by rubber diaphragms. A threaded cap fits over the mouths of the bottles. Circulation of the fluid is achieved by means of a Y tube fitted with needles (*B* and *B'*) at the forked stems and an intravenous needle at the distal stem of the Y. A screw clamp (*S*) shuts off or regulates the flow of plasma entering the vein.

The procedure of administering the plasma is as follows:

1. The screw clamp (*S*) is tightened (fig. 1).

2. Needle *B* is forced mechanically through diaphragm *C* into the plasma bottle, as described in the legends of figures 1 and 2, and needle *B'* is forced through diaphragm *C'* into the distilled water bottle, in like manner.

3. Air is let into the two bottles by puncturing the diaphragms of the upper stoppers (*A* and *A'*) mechanically with open needles fitted with air filters at its mouth. To seek its own level the water, being at a higher level, will enter the plasma

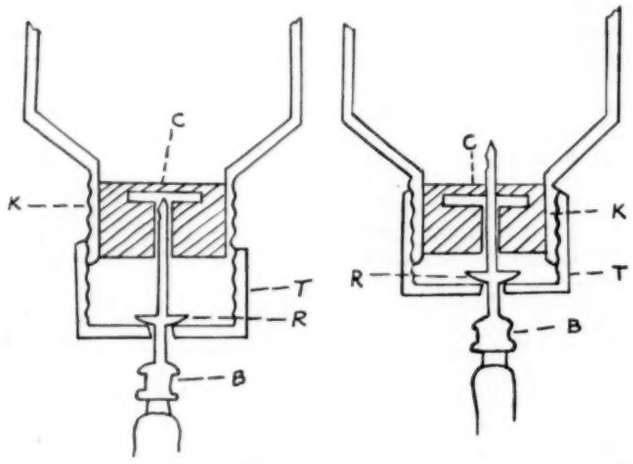

Fig. 2.—The threaded cap *(T)* fits over the mouth of the bottle *(K)*, on which it is only partially screwed when stored. This cap is drilled so that it can be slipped on over the needle *(B)*, which is inserted first and is fixed in position by a metal washer *(R)* on its shank. The tip of the needle rests in the channel of the stopper. To puncture the diaphragm, the cap is screwed on, forcing the needle against it, as shown in the diagram at the right.

bottle through the unobstructed channel of the forked stems of the Y tube, dissolving the plasma.

4. Air is expelled from the intravenous tube in the usual manner.

5. The intravenous needle is inserted into the vein, the flow of the plasma being controlled by the screw clamp (*S*).

For convenient use in emergency, the already assembled apparatus is simply suspended by a wire.

ALTERNATE METHODS

1. *Vacuum Method.*—1. Screw clamp (*S*) is tightened (fig. 1).

2. Seal *A'* is punctured and needle *B'* is forced through diaphragm *C'*.

3. Water is allowed to fill the Y of rubber tubing above screw clamp *S*. Then needle *B* is forced through diaphram *C*. The water will be forced into the plasma bottle by the difference in pressure.

4. That part of the Y carrying needle *B'* is clamped shut near the Y, and diaphram *A* is punctured.

5. Screw clamp *S* is loosened and air is expelled from the intravenous tube in the usual manner.

6. The intravenous needle is inserted into the vein, the flow of the plasma being controlled by the screw clamp *S*.

2. *Linear Vacuum Method.*—Double ended rubber diaphragm sealed bottles, containing water and plasma, the latter under vacuum, are braced in a linear position. A double ended needle is first inserted into the bottle containing water. The other end of this needle is plunged through the top diaphragm of the plasma bottle, and the opposite end of the water bottle is punctured with an open needle containing a filter. The water rapidly enters the plasma bottle. Then a single intravenous tube, fitted at one end with a needle and pinch clamp and carrying on the distal end an intravenous needle, is attached to the bottom end of the bottle containing the prepared plasma solution.

1749 Grand Concourse.

SULFAGUANIDINE TOXICITY

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Owing to its efficacy against the bacteria of the intestinal tract and its slow rate of absorption into the blood stream, sulfaguanidine is becoming increasingly widely used as a chemotherapeutic agent for intestinal diseases. The occurrence of severe reactions to sulfaguanidine therapy, however, apparently has not been recorded up to this time.

Although Turell and Leifer [1] have reported a dermatitis appearing during the administration of sulfaguanidine, in their case this may have been due in part to the sulfanilamide, sulfathiazole or sulfapyridine, all of which had been given previously. Ringelman [2] has reported an eruption associated with sulfaguanidine therapy alone. Marshall and his associates [3] observed no toxic effects in a series of 25 children who were given therapeutic doses of sulfaguanidine and only mild reactions in 3 of 25 adults who received the drug. These were in the form of drug fever, unilateral conjunctivitis and a "possible mild hemolytic anemia."

Sulfaguanidine is capable of producing more severe reactions. That the clinical use of sulfaguanidine is not without its hazards is shown in the following report:

REPORT OF CASE

A white woman aged 45, admitted to Kings County Hospital Oct. 27, 1941, had had recurring bouts of diarrhea over the past two years. These various episodes seemed to be precipitated by overwork and nervous strain. At the time of admission she was having six loose movements daily containing blood and mucus.

On proctoscopic examination, October 31, the entire rectal mucosa visualized was edematous and friable, bleeding easily. There were flecks of yellowish exudate seen and occasional superficial small ulcerations. A specimen of the exudate was taken for culture. A provisional diagnosis of ulcerative colitis was made. A barium enema showed no obstruction to the passage of opaque material from below. There was a moderate amount of feces and gas present in the large bowel. There was decrease in haustration and slight feathering of the colon outline.

The temperature and the pulse and respiratory rates were within normal limits from the time the patient entered the hospital. Examination of the urine was entirely negative. The patient responded to a high caloric, high vitamin, low residue diet and bed rest. Proctoscopic examination November 18, however, revealed that the mucosa of the rectum and sigmoid was still friable and edematous and was covered with a glairy exudate. There were small collections of purulent material

From the medical services of Drs. Bernhard A. Fedde and Arthur Fankhauser of the Kings County Hospital, Open Division.

1. Turell, Robert, and Leifer, William: Morbilliform Eruption Following the Use of Sulfaguanidine, J. A. M. A. **118**: 977 (March 21) 1942.

2. Ringelman, N. P.: Eruption Due to Sulfanilylguanidine (Sulfaguanidine), Arch. Dermat. & Syph. **45**: 353 (Feb.) 1942.

3. Marshall, E. K., Jr.; Bratton, A. C.; Edwards, Lydia B., and Walker, Ethel: Sulfanilylguanidine in the Treatment of Acute Bacillary Dysentery in Children, Bull. Johns Hopkins Hosp. **68**: 94 (Jan.) 1941.

which when wiped away revealed several shallow ulcerations. The culture taken on the previous examination yielded growth of Proteus vulgaris and a streptococcus. Since the proctoscopic examination still revealed evidence of an ulcerative colitis, sulfaguanidine therapy was instituted.

The first dose was calculated at the rate of 0.1 Gm. per kilogram of body weight; succeeding doses on the basis of 0.05 Gm. per kilogram of body weight were given every four hours.

On the evening of the ninth day of therapy, November 27, after 110 Gm. had been given, the patient, who previously had been bearing up well under treatment, complained of severe headache and nausea. Sulfaguanidine therapy was withheld at this time. After voiding at 8 p. m., the patient went to sleep and slept soundly.

At 11 o'clock the following morning, the patient complained that she had not voided since the preceding evening and that her headache persisted. Her temperature had risen suddenly from normal to 104 F. Her pulse was 92 a minute and respirations were 24 a minute. There was a diffuse morbilliform eruption over her face, abdomen, chest, back and extremities consisting of small macular areas which varied from 0.5 to 1 cm. in diameter. There was very little pruritus and the mucous membranes were not involved.

The urine at this time was amber; specific gravity was 1.022; it was alkaline in reaction and negative for albumin, and sugar was 1 plus. Microscopic examination revealed many sulfaguanidine crystals, white blood cells and occasional red blood cells but no casts. The blood sulfaguanidine level was 2 mg. per hundred cubic centimeters on November 28. Otherwise the blood chemistry was unaltered.

The patient looked extremely toxic. She felt nauseated and at 6 p. m. vomited a moderate amount of watery fluid. A record of the fluid intake and output for November 28 showed an oral intake of 2,600 cc. (reinforced by intravenous infusion of 1,000 cc. of 10 per cent dextrose in saline solution) with an output of only 130 cc.

The following day, November 29, her pharynx was red and her tongue was coated but moist. She still had the generalized macular erythematous rash, which blanched on pressure. Under the continued regimen of forced fluids, her temperature dropped back to normal and by November 30 the cutaneous rash had practically disappeared. The red and white blood cells and crystals were no longer found in the urine and the patient was voiding adequately. There was no more nausea, vomiting or headache and the patient felt much better.

COMMENT

Sulfanilamide, sulfapyridine, sulfathiazole and, to some extent, sulfadiazine have all been exposed as to their toxic effects. Sulfaguanidine may be held under a similar indictment with the other members of the sulfonamide family.

Despite its slow rate of absorption from the gastrointestinal tract, sulfaguanidine has produced its harmful side reactions and manifestations of irritation to organs. This seems to be the first noted instance of renal depression and irritation in human beings due to sulfaguanidine; it was evidenced by the oliguria and by the presence of red and white blood cells in the urine. (Marshall and others have reported renal depression in experimental animals due to administration of sulfaguanidine.[4])

It is possible that the ulcerated areas of the large bowel permitted more rapid absorption of the sulfaguanidine than would occur through the intact bowel wall. This factor should be considered in determining the amount of sulfaguanidine to be administered to patients with ulcers in the gastrointestinal mucosa. Since renal complications can occur in a person with normal kidney function, as in this case, it would seem that extra caution should be used if the drug is to be given to a person with previous renal damage—especially if he has coexisting breaks in his intestinal mucosal surface.

Prompt recovery occurred after the drug was discontinued and fluids were forced to facilitate its excretion. There were no evident after effects.

CONCLUSION

Severe intoxication manifested by nausea, vomiting, headache, sudden temperature rise, morbilliform toxicoderma, oliguria, hematuria and sulfaguanidine crystalluria occurred following sulfaguanidine therapy. The administration of sulfaguanidine is not an entirely innocuous procedure despite its slow rate of absorption from the intestinal wall into the blood stream. Caution should be used in its administration, especially if there are factors present which increase the rate of its absorption or decrease the rate of its excretion.

4. Marshall, E. K., Jr.; Bratton, A. C.; White, H. J., and Litchfield, J. T., Jr.: Sulfamylguanidine, a Chemotherapeutic Agent for Intestinal Infections, Bull. Johns Hopkins Hosp. **67**: 163 (March) 1940.

ANGIONEUROTIC EDEMA AND DERMATITIS VENENATA-LIKE LESIONS DUE TO THE ORAL ADMINISTRATION OF SULFATHIAZOLE

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Attention has been called to the fact that the sulfonamide group has produced cutaneous and mucous membrane reactions of different varieties. I wish to call attention to two phenomena observed in patients after the administration of small doses of sulfathiazole.

CASE 1.—A man aged 42 who was otherwise sound and healthy suffered from pustular lesions on the hands and feet which were due to ringworm fungous infection plus secondary contamination with hemolytic staphylococci.

He was given 12 tablets of sulfathiazole, which he took in three days. A week later he was given another 12 tablets, to be taken over Sunday and Monday. He took all but 3 tablets. He then waited two weeks and started to take the remaining 3 tablets of sulfathiazole. About thirty minutes after taking the first of the 3 tablets his tongue began to swell so rapidly that I was forced to go out to his house. The face was swollen, the eyelids closed and both hands and arms showed severe edema. The tongue was so swollen that he could do nothing but mumble. It was impossible to examine his larynx at that time.

He was immediately given 2 mg. of epinephrine chloride in oil and taken by car to the hospital. The edema promptly disappeared, and within three days all evidence of the trouble had entirely disappeared, except for a little redness at the edge of his eyelids.

It was considered that this man had become sensitized to the sulfathiazole by taking it during broken periods of time. It is advised that the sulfathiazole be given in these cases but not repeated unless it is absolutely necessary.

Two other cases were encountered:

CASE 2.—A man aged 40 who had an infection of the hand was given 3 0.5 Gm. tablets of sulfathiazole. On taking the second tablet he began to itch, and after the third tablet the itching became so severe that I was called to the house to see him.

He had vesicular lesions over both hands and forearms and scattered vesicular lesions over the entire body. The lesions on his hands and forearms resembled Rhus toxicodendron poisoning.

He was placed on a milk diet and given baths of aluminum acetate and boric acid, followed by the local application of calamine lotion. The eruptions disappeared in about two weeks.

Case 3 was similar in practically all details to case 2.

These 3 cases are reported as unusual toxic manifestations following the oral administration of sulfathiazole. In the 2 latter instances one could well assume that the sulfathiazole, or its derivatives, were deposited in the skin and produced dermatitis venenata-like eruptions.

1524 Professional Building.

Special Article

HANDBOOK OF NUTRITION: II

PROTEINS IN NUTRITION

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These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition.—ED.

The term protein was suggested by the Dutch chemist Mulder in 1839 as a designation for the universal component of tissues, both plant and animal. Protein was characterized by him as "unquestionably the most important of all known substances in the organic kingdom. Without it no life appears possible on our planet. Through its means the chief phenomena of life are produced."[1] Some sixty years later the primary importance of the proteins was again emphasized by Verworn,[2] who wrote: "The proteins stand at the centre of all organic life." Today, more than a century after Mulder, the proteins are still "first" (Greek, *πρωτεῖος*) in the regulation of vital processes, and disturbances in their metabolism are associated with nutritive failure and with many pathologic conditions with which the physician is confronted.

Proteins are normal constituents of all animal cells and body fluids with the exception of the bile and the urine. They are essential components of both the protoplasm and the nucleus of the cell; hence they exert a profound influence on growth. They are important in the regulation of osmotic relations between cells and intercellular fluids and between tissues and blood and play a significant role in the fluid balance of the body. Many of the best characterized enzymes have been obtained in crystalline form and have the properties of proteins (the "protein enzymes").[3] A considerable number of the hormones, chemical regulators of the body, are either proteins (the so-called protein hormones)[4] or are derivatives of proteins. Many of the substances associated with immunologic and antigenic reactions and similar phenomena are known to be proteins. Finally, in recent years the causative agents of certain virus diseases (notably the tobacco mosaic and the bushy stunt of the tomato) have been obtained in crystalline form and exhibit the characteristic properties of proteins, yet when inoculated into the proper host they multiply and give rise to the specific pathologic changes associated with the virus.[5] The study of "virus proteins" has become of increasing importance.

It is notable that the proteins exist as large molecules or possibly aggregates of molecules. In table 1 are presented the probable molecular weights of a few important proteins, as summarized by Svedberg and Pedersen.[6] The large molecules of even the simpler proteins may be compared with those of some other important constituents of tissues or body fluids: sodium chloride, 58; urea, 60; ascorbic acid, 176; dextrose, 180; lactose, 342; carotene (provitamin A), 537, and glyceryl tristearate (a typical fat), 891.

When this large protein molecule is broken down by the addition of the elements of water (hydrolysis), a considerable number of much simpler units or building stones are formed whose molecular weights range from 75 (aminoacetic acid, known also as glycocoll or glycine) to 240 (cystine). These units have the structure and properties of ampholytes (dissociation so that they may function either as an acid or as a base depending on the p_H of the environment) and are known as α-amino acids. From the chemical standpoint, they are characterized by the presence of a carboxyl (COOH) group with acidic properties and an amino (NH_2) group with basic properties, the two groups being attached to the same carbon atom.

The character of the remainder of the amino acid molecule (designated by R, fig. 1) varies, but all the typical products of hydrolysis have in common the presence of the carboxyl and amino groups. Important

TABLE 1.—*Sources and Probable Molecular Weights of Proteins*

Protein	Source	Probable Molecular Weight
Lactalbumin	Milk	17,600
Lactoglobulin	Milk	35,200
Zein	Corn	35,200
Pepsin	Gastric juice	35,200
Insulin	Pancreas	35,200
Bence Jones protein	Urine	35,200
Ovalbumin	Egg white	35,200
Hemoglobin (man)	Erythrocytes	70,400
Serum albumin (horse)	Blood	70,400
Serum globulin (horse, man)	Blood	140,800
Edestin	Hemp seed	282,000
Urease	Jack bean	422,000
Thyroglobulin	Thyroid	650,000
Antipneumococcus serum globulin	Horse blood	845,000
Bushy stunt virus	Tomato plant	7,600,000

chemical grouping in various amino acids are sulfur (cystine and methionine), hydroxyl (threonine and serine), benzene nucleus (phenylalanine and tyrosine), guanidine nucleus (arginine), indolyl ring (tryptophan) and imidazolyl ring (histidine).

Certain units or amino acids present in the protein molecule are considered of especial importance in the structure of tissue (growth) and are commonly designated as the essential amino acids. The chemical nature of these essential units will be discussed subsequently. The formulas of the other amino acids may be obtained from any of the numerous standard textbooks on biologic chemistry.

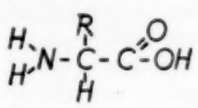
The amino acids are joined to each other in the protein molecule by a linkage known as the peptide linkage, in which the basic (amino) group of one acid is linked to the acidic (carboxyl) group of the adjacent acid with the loss of a molecule of water. A compound made up of two acids thus joined is known as a dipeptide, and a similar compound which contains several (usually an unknown number) amino acids bound together in the peptide linkage is known as a polypeptide.

Hydrolysis of the dipeptide for which the formula is given would break the peptide linkage (—NH—CO—), and the component amino acids would be obtained. While the peptide linkage may not be the only linkage

From the Department of Biological Chemistry, University of Michigan Medical School.

1. Mulder, G. J.: The Chemistry of Animal and Vegetable Physiology, quoted by Mendel, L. B.: Nutrition: The Chemistry of Life, New Haven, Conn., Yale University Press, 1923, p. 16.
2. Verworn, M.: General Physiology, London, Macmillan Company, 1899, p. 479.
3. Northrop, J. H.: Crystalline Enzymes, New York, Columbia University Press, 1939.
4. White, A.: Protein Hormones, in the Cold Spring Harbor Symposia on Quantitative Biology, Cold Spring Harbor, L. I., N. Y., The Biological Laboratory, 1938, vol. 6, p. 262.
5. Stanley, W. M.: Some Chemical, Medical and Philosophical Aspects of Viruses, Science **93**: 145-151 (Feb. 14) 1941.
6. Svedberg, T., and Pedersen, K. O.: The Ultracentrifuge, Oxford, England, Clarendon Press, 1940, p. 406.

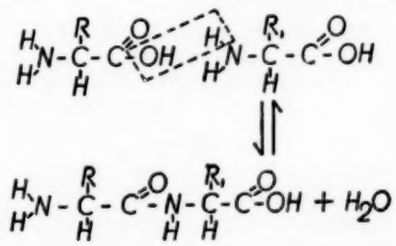
between the amino acids of the protein molecule, it is certainly by far the most important one. This is borne out by the chemical properties of native proteins (proteins as they are found in nature as contrasted with derivatives formed by the action of heat, alcohol, water, salts, enzymes and the like). The biologic reactions of the proteins are also more closely related to those of amino acids than to those of any other type of hydrolytic product of protein, such as proteoses or peptones.



An alpha amino acid

Just like the amino acids, which are ampholytes and may react with either acids or bases, depending on the p_H of their environment, the proteins as complexes of amino acids (polypeptides) may combine with either acids or bases. For the most part, the proteins as they exist in fluids and tissues of the animal organism function as acids (play the role of anions) and are in combination with bases (cations). Thus the protein hemoglobin of the erythrocytes is combined in the cell with bases (chiefly potassium) as a salt; similarly milk contains various salts of casein, of which calcium caseinate is important.

When two amino acids are joined in peptide linkage, two different peptides may be obtained; with three amino acids, six peptides, and with five amino acids, 120 peptides. These are known as isomers, since they are all made up of the same units and have the same percentage composition. They differ, however, in the arrangement of the amino acids in the peptide chain (for instance, in the case of a tripeptide, a-b-c, a-c-b, b-a-c, b-c-a, c-a-b and c-b-a, when a, b and c are three different amino acids). Since more than twenty amino acids are known to be of general occurrence in the protein molecule, it is obvious that the possible number of isomeric proteins (polypeptides) is very large. A peptide made up of the twenty amino acids most commonly obtained in the hydrolysis of protein, each acid occurring once only in the chain, would have a molecular weight of 2,499. A simple calculation shows that



Formation of a dipeptide

the number of possible isomers of this peptide would be 2,432,902,008,176,640,000, a number beyond the range of human thought.[7] Each of these peptides would have the same percentage composition, would yield the same amino acids on hydrolysis in the same proportions and would have similar properties. Each would differ from the other in some slight variation in the arrangement of the component amino acids of the peptide chain. Each would therefore be a chemical individual distinct from the other isomeric peptides.

If it is remembered that the protein molecule is much larger than that of the peptide just discussed, that native proteins vary greatly in the amounts of amino acids which they yield on hydrolysis and that some linkages other than the simple peptide linkage almost certainly occur in the protein molecule, it is evident that the possible number of different proteins as they exist in nature is almost infinite. This individuality of natural proteins finds expression in the so-called specificity of the proteins. This may be most simply defined by the statement that every species tends to construct within the organism a protein characteristic of that species. Thus, casein of cow's milk is believed to differ from casein of goat's milk, protein of beef muscle to differ from protein of pork muscle and serum protein of human blood to be different from serum protein of beef blood. While in my opinion the basis of this specificity is undoubtedly chemical and is related to the possibilities of isomerism just discussed, this cannot be proved at present. The specificity of proteins of different biologic origin must for the present be demonstrated by biologic reactions, by the reactions observed when "foreign" protein is introduced into the organism. The phenomena of anaphylaxis, of antibody formation, of food allergies and of many other antigenic and immunologic reactions are all manifestations of this biologic specificity of the proteins, so important in many considerations of medical practice.

The protein of the human diet is obtained from both animal and vegetable sources. Among foodstuffs of animal origin, meats (both muscular and glandular tissues), fish, eggs, milk and milk products are most important. Vegetable protein is most readily available in the cereal grains (wheat, corn, rice, rye and barley), the seeds of legumes (peas and various kinds of beans) and many nuts, of which the peanut is perhaps most important in the human diet. It is estimated that the cereals contribute about 25 per cent of the total calories of the diet of the American people.

The proteins of the foodstuffs, large molecules with colloidal properties, do not diffuse readily through biologic membranes. If these dietary proteins are to be utilized, it is necessary that they be altered so that passage through the mucous membrane of the intestine is possible. This is accomplished in the gastrointestinal canal by the process of digestion, by the action of a group of biologic catalysts or enzymes, whose activities are so coordinated as to effect a rapid and complete hydrolysis to the soluble diffusible amino acids. Since biologically the amino acids are nonspecific, digestion results in the loss of the biologic specificity of the proteins; if this were not the case, large amounts of "foreign" protein would normally enter the blood stream from the alimentary canal, and food allergies of protein origin would be of very frequent occurrence. In the words of the English physiologist Cathcart:[8] "It is the disintegration of the specific protein to its constituents which are for the most part non-specific which would seem to be the characteristic function of digestion; the breakdown of the colloidal non-dialyzable whole protein to the dialyzable simple peptides and amino acids."

The enzymes concerned in this process are pepsin and rennin of the gastric juice, trypsin and chymotrypsin of the pancreatic juice and a group of enzymes known as peptidases, which are present in the pancreatic and

7. Abderhalden, E.: Lehrbuch der physiologischen Chemie, ed. 6, Berlin and Vienna, Urban and Schwarzenberg, 1931, p. 302.

8. Cathcart, E. P.: The Physiology of Protein Metabolism, in Monographs on Biochemistry, ed. 2, London, Longmans, Green & Co., 1921, p. 3.

intestinal juices and hydrolyze the peptides. (It should be noted that commercial "trypsin" and the trypsin referred to in the older literature are mixtures of the proteolytic enzymes of pancreatic tissue and include not only trypsin but also chymotrypsin and peptidases [9] Digestion is best effected if these enzymes act on the proteins of the diet in the natural anatomic sequence, i. e., gastric, pancreatic and intestinal.

TABLE 2.—*The Amino Acids Essential for Growth of the White Rat*

Amino Acid	Characteristic Chemical Grouping
Threonine	Hydroxy group on 4 carbon chain
Leucine	6 carbon branched chain
Isoleucine	6 carbon branched chain
Lysine	2 amino groups on 6 carbon chain
Histidine	Imidazole nucleus
Tryptophan	Indole nucleus
Phenylalanine	Benzene nucleus
Methionine	Methyl thiol group
Arginine *	Guanido group

* Arginine has a special position, as discussed in the text.

Digestion proceeds rapidly in the intestine; the amino acids are absorbed as rapidly as they are formed by the activity of the enzymes. Although digestion studies in vivo with experimental animals with fistulas at various levels throughout the alimentary canal have clearly demonstrated that the major portion of the ingested protein is completely hydrolyzed to amino acids, or at least to very simple peptides,[10] the question of the absorption of some portion of the protein of the diet in unaltered form into the circulation must be considered. Early workers whose experimental methods were not adequate were led to favor the possibility of such an absorption under unusual circumstances, particularly in young animals, in which the intestinal membrane was assumed to be more readily permeable. The use of the newer methods of immunology, by which accurate detection and differentiation of very small amounts of specific proteins have been made possible, has thrown new light on the question. By these methods it now appears to have been demonstrated that in many persons, without regard to age or sex, a detectable amount of certain proteins frequently enters the blood stream in an unaltered state via the alimentary canal. As Walzer [11] has expressed it, "The regularity with which the phenomenon occurs in the average individual and the uniformity of results when repeatedly tried under identical conditions on the same subject, preclude the possibility that this is an accidental or unusual occurrence." Of the protein foods studied, the most extensive observations have been reported with egg white.[12] These findings are of special significance in relation to the phenomena of sensitization to specific protein foods. However, it should be remembered that the methods of immunology are capable of detecting exceedingly minute amounts of protein and that the total amount of protein absorbed thus unaltered must be very slight. One may, then, with a reasonable degree of confidence look to the behavior of the individual amino acids for the interpretation of the role of protein in normal nutrition.

The products of the digestion of proteins, chiefly the amino acids, enter the portal blood on absorption from the intestine and are distributed to the tissues by the systemic blood. The postabsorptive increase in the amino acid nitrogen of the blood, although not large, is unquestioned. The amino acids are rapidly taken up by the tissues, and the amino acid content of the blood returns to normal.[13]

One of three fates awaits the amino acids which thus enter the cell. The first is condensation with other amino acids, selected by the particular tissue in question from the pabulum supplied to it by the blood, to form the protein characteristic of that particular tissue or cell. This specific synthesis, the converse of digestion, makes possible the maintenance of the individuality of the cell. This process acquires a particular significance in young animals in which building of new tissues, growth, must occur for normal development and in the adult in normal pregnancy and lactation.

A second metabolic path is utilization of the amino acids for some special purpose in the animal economy apart from the general synthesis of cellular protein. Examples of this are the synthesis of such proteins as hemoglobin, fibrinogen and the serum proteins. Amino acids are utilized also for the formation of specific proteins with hormonal function (insulin and prolactin) or amino acid derivatives which are hormones (epinephrine and thyroxine) or chemical regulators which are not usually classed as hormones (glutathione, histamine and creatine). The synthesis of the "protein enzymes" (pepsin, trypsin, catalase and carbonic anhydrase) also occurs. The details of the reactions which lead to the synthesis of such specialized proteins and protein derivatives are not as yet clearly understood.

After the needs of the cells for these two purposes have been met, an excess of amino acids may still remain in the cells. The fate of this amino acid fraction is deamination—removal of the nitrogenous portion of the molecule—and utilization of the non-nitrogenous portion, since in contrast to fat and carbohydrate storage of protein or amino acids for any considerable time does not appear to be possible. The nitrogenous fraction of the molecule, split off as ammonia, is rapidly converted into urea under normal conditions and is eliminated in this form by the kidneys. The efficiency of this transformation is demonstrated by the fact that normally systemic blood contains less than 0.1 mg. of ammonia nitrogen per hundred cubic centimeters, while the urea content of normal blood calculated as urea nitrogen is approximately 17 mg. per hundred cubic centimeters. The non-nitrogenous residue which remains

TABLE 3.—*Amino Acids Not Essential for Growth of the White Rat*

Glycine	Hydroxyglutamic acid
Alanine	Citrulline
Serine	- - - - - - - - -
Cystine	Proline *
Aspartic acid	Hydroxyproline *
Tyrosine	Hydroxylysine *
Norleucine	Glutamic acid *

* In his most recent summary, Rose [15] did not include these four amino acids among those whose nonessential character is definitely proved. Earlier work, however, indicated that they were dispensable dietary components.

9. Northrop,[3] pp. 62-63.

10. Abderhalden, E.; Kautzsch, K., and London, E. S.: Studien über die normale Verdauung der Eiweisskörper im Magendarmkanal des Hundes, Ztschr. f. physiol. Chem. **48:** 549-556, 1906. Abderhalden, E.; Baumann, L., and London, E. S., ibid. **51:** 384-390, 1907.

11. Walzer, Matthew: Studies in Absorption of Undigested Proteins in Human Beings: I. A Simple Direct Method of Studying the Absorption of Undigested Protein, J. Immunol. **14:** 143-174 (Sept.) 1927.

12. Wilson, S. J., and Walzer, Matthew: Absorption of Undigested Proteins in Human Beings: IV. Absorption of Unaltered Egg Proteins in Infants and Children, Am. J. Dis. Child. **50:** 49-54 (July) 1935. Ratner, Bret, and Gruehl, H. L.: Passage of Native Proteins Through the Normal Gastrointestinal Wall, J. Clin. Investigation **13:** 517-532 (July) 1934. The observations with egg white are of interest in view of the studies which show poor utilization of the proteins of raw egg white. Compare Bateman, W. G.: The Use of Raw Eggs in Practical Dietetics, Am. J. M. Sc. **153:** 841-855 (June) 1917.

13. Van Slyke, D. D.: The Present Significance of the Amino Acids in Physiology and Pathology, Arch. Int. Med. **19:** 56-78 (Jan.) 1917; Physiology of the Amino Acids, Science **95:** 259-263 (March 13) 1942.

after deamination may either be transformed into dextrose and used in this form, the antiketogenic fraction of the protein molecule, or be converted to fatty acids, the ketogenic fraction of the protein molecule. Whether the non-nitrogenous residue is converted to dextrose for utilization in that form depends on the chemical structure of the original amino acid. In general one may say that about half of the amino acids present in the molecule of any individual protein may give rise to dextrose in intermediary metabolism.

Physiologic and nutritional studies alike have emphasized the role of the amino acids as structural elements, the building stones of living protoplasm. What are the amino acid requirements for the construction of new cells? Are all the amino acids of equal importance in nutrition? These questions have been answered in part by the studies of Rose, which were based on the pioneer work of Hopkins and of Osborne and Mendel. It should be emphasized that the discussion immediately following concerns the requirements for growth of one species, the white rat. Rose [14] first demonstrated that it was possible to obtain normal growth of young white rats when the protein element of the diet was supplied by a mixture of chemically pure amino acids, which included those acids known to be of general occurrence in the protein molecule. The effect of the removal of the various individual amino acids from this mixture was then studied. The absence of certain acids from the diet resulted in impaired growth or in some cases considerable losses in weight and ultimately death. These amino acids, designated as essential, could not be synthesized by the rat and had to be supplied in the diet in adequate amounts or nutritive failure resulted. The withdrawal of other amino acids did not influence the rate of growth. These amino acids, the nonessential amino acids, must therefore be synthesized in the body at a speed commensurate with the needs for normal growth. In tables 2 and 3 are presented Rose's most recent classification [15] of the amino acids on this basis. It has been possible in still further studies to obtain growth in rats fed a mixture of the ten essential amino acids listed in table 2 with the omission of all the acids listed as nonessential. When this essential amino acid mixture was fed at a level of 11.2 per cent of active amino acids normal growth was observed, and at the low level of 5.8 per cent slow growth occurred. In the group of essential amino acids arginine occupies a unique position. Growth is possible in the absence of this amino acid from the diet, but the rate of growth is distinctly less than when arginine is supplied. Rose has defined an indispensable dietary component as "one which cannot be synthesized by the animal organism, out of the materials *ordinarily available* at a speed commensurate with the demands for *normal* growth." [16] If this definition is accepted, arginine is classed as essential. This classification of amino acids is one based on the growth requirements of rats. Whether modifications must be made when requirements for pregnancy, lactation or maintenance are under consideration remains to be determined. The possibility of species differences must also be considered. It is known that many of the amino acids are essential for the growth of the young chick. Glycine, however, which can be synthesized by the rat, appears to be an indispensable amino acid for the chick.[17] The limited data available suggest that from the qualitative standpoint the amino acid requirements of the white rat and of man are similar. Holt and his co-workers have studied the effects of the withdrawal of lysine,[18] tryptophan [19] and arginine [20] from the diet of the adult human being. The subjects were fed diets on which maintenance of nitrogenous equilibrium was possible. When either of the first two amino acids was removed from the diet, nitrogen was lost from the body, i. e., negative nitrogen balances were obtained. When the missing amino acids were restored to the diet, nitrogenous equilibrium was again obtained. These observations represent, so far as I know, the first convincing demonstrations of the essential nature of specific amino acids in man. Of particular interest was the finding that when arginine was removed from the diet [20] the number of spermatozoa in the seminal plasma was greatly reduced. After the restoration of arginine to the diet, the content of spermatozoa returned to normal. Since the testicular tissue of certain fish is known to be exceedingly high in its content of arginine, the authors interpret these findings to indicate that a temporary deficiency of arginine may be met in man by atrophy of the spermatogenic tissue and conclude that arginine also is a human dietary essential. So far as I know, no analyses of the arginine content of human spermatozoa are available. These experiments, which had as one of their objectives "to discover whether deficiencies of particular amino acids produced characteristic pathological changes which could be recognized by clinical or laboratory technics," [19] are of great importance, and further details should prove of unusual interest.

While experimental evidence is not available in most cases, it seems clear that the rat is able to synthesize the dispensable amino acids if these are not supplied in the diet. The tissue protein synthesized during growth in such experiments must be assumed to be of a type normal and characteristic of the species, since it is considered axiomatic that "the tissues either form a typical protoplasmic product, or none at all." [21] In the case of the sulfur-containing amino acids, the evidence seems clear that the dispensable cystine may be synthesized from the essential methionine.[22]

The function of the essential amino acids, other than for the construction of new protoplasm, is not clear. Studies of the relation of the essential amino acids to the maintenance of adult animals are not extensive. It seems probable, however, that most of the amino acids which are required for growth will be demonstrated to be essential for the maintenance of adult animals. Methionine is a precursor of cystine, an amino acid important in the molecule of the proteins of epidermal structures and also of certain hormones,

14. Rose, W. C.: The Significance of the Amino Acids in Nutrition, Harvey Lectures, Baltimore, Williams & Wilkins Company, 1934-1935, series XXX, p. 49; The Physiology of Amino Acid Metabolism, Proc. Inst. Med. Chicago **12:** 98-110 (April 15) 1938.

15. Rose, W. C., and Fierke, S. S.: The Relation of Aspartic Acid and Glucosamine to Growth, J. Biol. Chem. **143:** 115-120 (March) 1942.

16. Rose, W. C.: The Nutritive Significance of the Amino Acids, Physiol. Rev. **18:** 109-136 (Jan.) 1938. Sentence quoted is on page 129.

17. Almquist, H. J.: The Amino Acid Requirements and Protein Metabolism of the Avian Organism, Federation Proc., to be published.

18. Albanese, A. A.; Holt, L. E., Jr.; Brumback, J. E., Jr.; Hayes, Marjorie; Kadji, Charlotte, and Wangerin, Dorothy M.: Nitrogen Balance in Experimental Lysine Deficiency in Man, Proc. Soc. Exper. Biol. & Med. **48:** 728-730 (Dec.) 1941.

19. Holt, L. E., Jr.; Albanese, A. A.; Brumback, J. E., Jr.; Kadji, Charlotte, and Wangerin, Dorothy M.: Nitrogen Balance in Experimental Tryptophane Deficiency in Man, Proc. Soc. Exper. Biol. & Med. **48:** 726-728 (Dec.) 1941.

20. Holt, L. E., Jr.; Albanese, A. A.; Shettles, L. B.; Kadji, Charlotte, and Wangerin, Dorothy M.: Studies of Experimental Amino Acid Deficiency in Man: I. Nitrogen Balance, Federation Proc. **1:** part 2, 116-117 (March 16) 1942.

21. Osborne, T. B., and Mendel, L. B.: Amino Acids in Nutrition and Growth, J. Biol. Chem. **17:** 325-349, 1914. Quotation is from page 334.

22. Lewis, H. B.: The Significance of the Sulfur-Containing Amino Acids in Metabolism, Harvey Lectures, Baltimore, Williams & Wilkins Company, 1940-1941, series XXXVI, p. 159. Rose, W. C., and Wood, T. R.: The Synthesis of Cystine in Vivo, J. Biol. Chem. **141:** 381-389 (Nov.) 1941.

particularly insulin, in the molecule of which 12 per cent of cystine is present and no methionine.[23] Methionine also supplies methyl groups for the synthesis of choline, a dietary essential, and of creatine, important for maintenance of muscle function.[24] Phenylalanine presumably furnishes the nucleus for the synthesis of thyroxine, the iodine-containing amino acid present in the specialized physiologically active thyroglobulin of the thyroid, and of epinephrine, the endocrine principle of the adrenal medulla. Histidine may be decarboxylated to yield histamine, the amine whose biologic role seems demonstrated.[25] Arginine is believed to supply the amidine group for the synthesis of creatine.[26] Specific functions for the other essential amino acids are yet to be suggested.

An important application of the observations that properly chosen mixtures of amino acids may replace proteins in nutrition has been the clinical use of protein hydrolysates, prepared for the most part by enzymatic action on proteins in vitro. These preparations may be administered either orally or parenterally. The utilization of intravenously injected amino acids over a considerable period was first demonstrated by Henriques and Anderson[27] in experiments with a goat. The clinical use of such protein hydrolysates has been studied extensively by Elman[28] and others.[29] Intravenous administration of protein hydrolysates has been shown to be beneficial when feeding by mouth is not possible or is inadvisable. Since hydrolysis destroys the biologic specificity of the native proteins, protein hydrolysates orally administered have proved of value in supplying nitrogen to persons with severe food allergies.[30] Whipple and his co-workers have demonstrated that protein hydrolysates may function effectively in the restoration of plasma protein in dogs whose reserve of tissue and plasma proteins have been depleted by bleeding.[31] Clinical use of such hydrolysates when plasma is not readily available may become important.

The problem of the amount of protein which is essential or optimal in the diet of man has received much study. Many excellent critical summaries are available.[32] Two general methods of approach to this problem have been followed: 1. The endogenous protein metabolism has been determined experimentally, since by many investigators[32] the basal or maintenance requirement for protein is considered to be identical with this fraction. 2. In the statistical approach, the quantity of protein in the diet of well nourished middle class racial groups has been estimated. Since these diets are usually not on the level of luxus consumption, it is believed that they may afford safe indexes of desirable national nutrition.

It is usually accepted that luxus consumption of protein over prolonged periods is of no permanent value to the adult organism, since in contrast to fat and carbohydrate, protein and its building stones, the amino acids, are not stored. This is seen in the state of nitrogenous equilibrium or balance. If the dietary protein of a normal adult is adequate, the nitrogen of the diet (chiefly protein nitrogen) is equal to the nitrogen of the excreta (mainly the nitrogen of the urine). If to the diet of such a person increased amounts of protein are added, there is a sharp increase in the nitrogenous waste products of the urine (largely urea, derived from protein catabolism), and within a relatively short time nitrogenous equilibrium is again obtained but at a higher level of excretion. If new protein is being synthesized in the body (growth, pregnancy and lactation), the nitrogen excreted is less than that of the diet and the subject is said to be in positive nitrogen balance. When the nitrogen excreted is greater than the dietary nitrogen, a condition of negative balance is obtained. This indicates an inadequate intake of dietary protein or an excessive breakdown of body protein associated with disease.

The level of endogenous nitrogen protein metabolism may be obtained by a consideration of the nitrogen excretion of an adult maintained on a diet high in its content of fat and carbohydrate but containing no protein. Experimentally this has been found to approximate 3 Gm. a day for a man weighing 70 Kg., or about 20 Gm. of protein.[33] There is, however, evidence that to provide a safe allowance for health, protein in excess of the requirements for maintenance is essential. It is argued that excessive consumption of protein imposes a burden on the organism and is likely to be harmful. The proponents of the high protein diet, on the other hand, argue that a surplus of protein may have a beneficial effect on health and well-being and cite studies of racial groups which indicate that physical efficiency and health can be related directly to the intake of protein and particularly of animal protein. The high protein diet of the Eskimo, in which the protein is obtained almost entirely from meat, does not appear to have resulted in a high incidence of renal disease in this group.[34] The careful studies of the metabolism of 2 Arctic explorers who lived for a year in the temperate zone on a diet of meat only are of particular interest.[35] It must be remembered, however, that in studies of human populations the protein element is only one of many factors in health and that it is difficult to assess the role of dietary protein alone without many greatly extended studies.[36]

Outstanding among the pathologic conditions which have been associated with prolonged ingestion of a diet inadequate in its protein content is nutritional edema (known also as war or starvation edema), which has been observed clinically in Europe, in the Orient

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24. du Vigneaud, Vincent: Interrelationships Between Choline and Other Methylated Compounds, in Biological Symposium, edited by H. B. Lewis, Lancaster, The Jacques Cattell Press, 1941, vol. 5, p. 234. Lewis.[25]

25. Best, C. H., and McHenry, E. W.: Histamine, Physiol. Rev. **11:** 371-477 (Oct.) 1931.

26. Bloch, Konrad, and Schoenheimer, Rudolf: The Biological Precursors of Creatine, J. Biol. Chem. **138:** 167-194 (March) 1941.

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28. Elman, Robert: Parenteral Replacement of Protein with the Amino Acids of Hydrolyzed Casein, Ann. Surg. **112:** 594-602 (Oct.) 1940.

29. Farr, L. E.: Indications for the Therapeutic Use of Intravenous Amino Acids, Connecticut M. J. **5:** 24-27 (Jan.) 1941. Beling, C. A., and Lee, R. E.: Treatment of Hypoproteinemia by Oral Administration of Protein Hydrolysates, Arch. Surg. **43:** 735-747 (Nov.) 1941.

30. Hill, L. W.: Amino Acids as a Source of Nitrogen for Allergic Infants, J. A. M. A. **116:** 2135-2136 (May 10) 1941.

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33. Martin, C. J., and Robinson, R.: The Minimum Nitrogen Expenditure of Man and the Biologic Value of the Various Proteins for Human Nutrition, Biochem. J. **16:** 407-447, 1922. Terroine.[32]

34. Rabinowitch, I. M.: Clinical and Other Observations on Canadian Eskimos in the Eastern Arctic, Canad. M. A. J. **34:** 487-501 (May) 1936.

35. McClellan, W. S., and Du Bois, E. F.: Clinical Calorimetry: XLV. Prolonged Meat Diets with a Study of Kidney Function and Ketosis, J. Biol. Chem. **87:** 651-668 (July) 1930. McClellan, W. S.; Rupp, V. R., and Toscani, V.: XLVI. Prolonged Meat Diets with a Study of the Metabolism of Nitrogen, Calcium and Phosphorus, ibid. **87:** 669-680 (July) 1930.

36. Cuthbertson, D. P.: Quality and Quantity of Protein in Relation to Human Health and Disease, Nutrition Abstr. & Rev. **10:** 1-20 (July) 1940.

and in the United States and can be produced experimentally in animals maintained on a low protein diet.[37] The continued ingestion of the low protein diet results in low levels of plasma protein (particularly the albumin fraction), and the resultant lowering of the "effective" osmotic pressure of the plasma is believed to be the cause of the edema.

This discussion indicates the desirability of caution in the selection of a standard protein level for national nutrition. Extremes are to be avoided. One of the first attempts to assess the desirable level of protein of the diet by the statistical approach was that of Voit. In a study of the diets of the average laborer in Germany a daily consumption of 118 Gm. of protein was observed. So great was the prestige of Voit that this standard allowance of dietary protein was accepted without serious challenge for a quarter of a century. Chittenden of Yale and Hindhede of Copenhagen in the early part of the present century held that the "Voit standard" diet supplied an excessive amount of protein and that a lower level was desirable. It is not necessary to enter into the details of the controversy between the advocates of the low and high protein diet, a controversy which is excellently and impartially presented in the classic text of Graham Lusk.[38] Sherman, after a careful consideration of the acceptable balance experiments with human beings, in which nitrogen equilibrium was established at low levels of dietary protein, concluded that "a standard allowance of 1 Gm. of protein per kilo of body weight per day appears, therefore, to provide a margin of safety of 50 to 100 per cent as far as requirements of adult maintenance are concerned."[39] This standard for adult maintenance has been accepted almost universally, while the need for larger amounts of protein in diets of growing children and of pregnant and lactating women is clearly recognized. The recently adopted standards for national nutrition, as proposed by the Food and Nutrition Board of the National Research Council, provide for 70 Gm. of protein a day in the diet of a man weighing 70 Kg. and 60 Gm. of dietary protein for a woman weighing 56 Kg.

Estimates of the increased requirements for protein during pregnancy and lactation vary greatly.[40] The protein requirement per kilogram of body weight is high in infancy and decreases as growth occurs until after puberty, when the adult requirements only are necessary. The desirable amount of dietary protein is estimated to vary from 4 Gm. per kilogram a day at 1 to 3 years to 2 Gm. at 17 to 18 years. The necessity of protein with high biologic value, such as the proteins of milk, during the period of active growth can hardly be overemphasized. That increased muscular activity necessitates a larger intake of protein is as yet unproved. Traditionally the diet of highly trained athletes and of laborers engaged in hard work, whose calorific requirements are high, contains much meat and supplies large amounts of protein.[36]

The preceding discussion has been concerned with the quantitative aspects of the protein requirements of man. That the dietary protein will be derived from a wide variety of foodstuffs of both animal and vegetable origin is assumed. In the United States, it is estimated that animal protein makes up at least 50 per cent of the usual diet. If the variety of foodstuffs is limited, care must be exercised in the selection of protein. The chief consideration in the choice of protein must be the furnishing of the essential amino acids to be made available to the tissues by digestion. Since the optimal mixture of the essential amino acids for the nutrition of man is not yet known, the diet must supply all the known essential amino acids in liberal amounts. Animal proteins usually have a greater biologic value than do the proteins of vegetable origin. Thus zein, one of the proteins of the maize kernel, contains no lysine or tryptophan, two important essential amino acids. When the diet is derived exclusively from plant materials, more protein must be eaten. A notable exception is gelatin. This protein, a product of food technology and derived from collagen, completely lacks at least two essential amino acids, valine and tryptophan, and contains little tyrosine and cystine, amino acids which, while not essential, may be important in nutrition. Gelatin supplies a mixture of amino acids, which is inadequate if used as the sole or chief source of these tissue-building stones. The recent claims for the superior food value of gelatin require further and more careful study.[41] The excellent quality of the mixture of proteins present in milk is notable.

Carbohydrates spare body protein. The breakdown of body protein is significantly increased if the supply of the energy-producing foods and particularly of carbohydrates is not ample. The consideration of the total calorific value of the diet is of special importance when the diet is low in its protein content, as are certain diets prescribed for therapeutic purposes. Diets of high calorific content usually contain liberal or large amounts of protein.

It is known that in the case of certain essential elements present in food (notably the vitamins) the nutritive value may be influenced by preservation, processing and cooking.[42] Thus the nutritive values of a natural foodstuff as determined by chemical analysis may not be a safe guide to its value when prepared for consumption. Since foodstuffs which are important sources of protein are seldom consumed in the raw state, possible changes due to heat must be considered. Even milk in present day practice is usually subjected to the mild heat of pasteurization. The evidence in the case of proteins is conflicting. The biologic value of the protein of certain legumes is believed to be increased by cooking, while the nutritive value of some other proteins (meat, casein and milk products) appears to be lowered by heat.[43] A detailed discussion is not possible here. Whether such changes are sufficiently extensive to be of practical significance remains to be determined.

No discussion of recent developments in protein metabolism can neglect the mention of the experiments of Schoenheimer in which isotopic nitrogen (N^{15}) has been used as a marker. These experiments indicate that a "rapid and continuous chemical regeneration of the cell proteins is a general characteristic of living matter," but despite this striking and continuous chemical activity of the organ proteins it is believed that

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42. Kohman, E. P.: The Preservation of the Nutritive Value of Foods in Processing, J. A. M. A., to be published; article XV in this series.

43. Johnson, L. Margaret; Parsons, Helen T., and Steenbock, Harry: The Effect of Heat and Solvents on the Nutritive Value of Soy Bean Protein, J. Nutrition **18**: 423-434 (Oct.) 1939.

these processes "lead to no final quantitative or qualitative changes" in the composition of the tissues.[44] This is in confirmation of the older belief in the constancy of composition of the structural elements of protoplasm. While the observations of Schoenheimer and his group are of great physiologic significance, it is not believed that at present they suggest any changes in the current practices of dietetics so far as concerns protein.

Karl Thomas in 1929 thus summarized the unsolved problems of the biologic value of protein:[45] "What we need to know is: 1. Which amino acids must be present in the food, 2. How much we require of each, 3. And to what purpose." Today, after more than a decade of intense interest and research in protein metabolism, these questions still epitomize the problem of the role of proteins in nutrition. When they can be answered exactly, the role of protein in the diet will be known, and one will be able to determine the dietary value of every mixture of proteins in natural foodstuffs.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

H. A. CARTER, Secretary.

"JUNOFORM" TWO-WAY STRETCH ELASTIC HOSIERY ACCEPTABLE

Manufacturer: Chesterman-Leeland Company, 406 Memphis Street, Philadelphia.

"Junoform" Two-Way Stretch Elastic Hosiery is an elastic stocking recommended for varicose veins or other swollen leg conditions. The manufacturer states that "Junoform" Stockings are fashioned through tensions while being knitted which results in a "curving" line, following as closely as practical (for reasons of compression) the curving lines of the leg. Such design and manufacture are also said to result in a slightly greater supporting pressure around the ankle.

An extra end of fine mercerized yarn has been knitted into the stocking in addition to the covered latex yarn, resulting in a smooth surfaced stocking. This is said to increase the wearing qualities of the stocking as does the fact that the heel is reinforced with nylon twisted with yarn.

The following report of a reliable testing laboratory was submitted by the manufacturer as evidence for Junoform Stockings:

Heel Joinings 6,221 strokes	Area from Heel to 1 Inch Above Heel 3,768 strokes	Leg Stretch Test, Average Six Areas 12.0 pounds
Ankle Stretch Test 15.5 pounds	Single Thickness of Stocking at Calf, Area Average 0.0308 inch	Weight of Stockings 1.78 ounces

In the Council's examination of the "Junoform" stockings, patients who had already been accustomed to wearing lastex stockings were provided with the "Junoform" hose. These patients found that the stockings were of uniform tension, that they were of good wearing quality and that they could be washed easily. Stockings come in three sizes and can be used for patients who do not require any support above the knee.

The Council on Physical Therapy voted to accept the "Junoform" Two-Way Stretch Elastic Hosiery for inclusion on its list of accepted devices.

44. Schoenheimer, Rudolf, and Rittenberg, D.: The Study of Intermediary Metabolism of Animals with the Aid of Isotopes, Physiol. Rev. **20:** 218-248 (April) 1940. Schoenheimer, Rudolf, and Ratner, S.: The Metabolism of Proteins and Amino Acids, Ann. Rev. Biochem. **10:** 197-220, 1941.

45. Thomas, Karl: Biological Values and the Behavior of Food and Tissue Protein, J. Nutrition **2:** 419-435 (March) 1930.

GENERAL ELECTRIC HEAT LAMPS, MODELS IR-4 AND IR-5, ACCEPTABLE

Manufacturer: General Electric Company, 1285 Boston Avenue, Bridgeport, Conn.

The General Electric Heat Lamps, Models IR-4 and IR-5, are designed to generate infra-red radiation. Model IR-4 is a table model and IR-5 a floor model. Both employ as a source of radiation a bulb on which is inscribed "Reflector Heat—250 Watt, 105-120 volt."

The mounting for the bulb on each of the lamps is of the conventional reflector form, although there is no reflection surface on the mounting; the reflector is incorporated in the bulb. There is no "Off-On" switch in either model.

Model IR-5 (the floor model) has a stand adjustable at various heights to 5 feet. Adjustments are made by means of screws. The base of this unit is rather light and when the stand is at full height it tends to tip easily.

Model IR-4 (the table model) has a bakelite base with an adjustable bracket. Adjustments are made by means of screws.

General Electric Heat Lamp, Model IR-4

Examination of the lamps showed them to give satisfactory heat radiation for therapeutic use in the home under prescription of a physician.

The Council voted to accept the General Electric Heat Lamps Models IR-4 and IR-5 for inclusion in its list of accepted devices.

ALOE SHORT WAVE DIATHERMY UNIT ADMIRAL MODEL ACCEPTABLE

Manufacturer: A. S. Aloe Company, 1819 Olive Street, St. Louis.

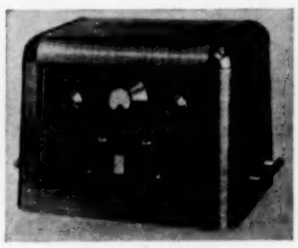
The Aloe Short Wave Diathermy Unit, Admiral Model, is designed for use in medical and minor surgical diathermy. Mounted in a wooden cabinet, the apparatus is equipped with line cord, two rectifier tubes, two power tubes, two 8 by 10 inch pad electrodes and induction cable. The unit operates on alternating current, 110 to 125 volts.

In the Council's test of the physical characteristics of the instrument the following results were obtained:

Electromotive force	115 volts
Power input	940 watts
Power output	300 watts

The final transformer temperature was within the limits prescribed by the Council.

The firm submitted evidence to support the ability of the unit to generate heat deep within the tissues. In the cuff technic the electrodes were made of a stiff resilient metal so that they embraced the thigh with a springlike action. The dimensions were 2⅜ by 25 inches (upper cuff) and 2⅜ inches by 18½ inches (lower cuff). The metal strip used in the electrodes was 1½ inches wide. The average distance between cuffs was: right, 7¾ inches; left, 7½ inches. Average spacing was: right, 1 inch; left, ⅞ inch. Room temperature was 74 F.; humidity was about 42 per cent.



Aloe Short Wave Diathermy Unit, Commander Model.

When the electromagnetic method was tested, the distance between coils was approximately 1 inch. About one-half inch of spacing was used to separate the coil from the skin. The

average thigh circumference was about 19¼ inches. The room temperature was approximately 75 F.; the humidity was around 48 per cent.

The unit was tried out clinically by a qualified investigator, who reported that it gave satisfaction when used for cuff and coil technic.

Average Temperatures of Six Observations

Cuff Technic			
Deep Muscle		Rectal	
Initial	Final	Initial	Final
97.3	107.3	99.0	99.2
Coil Technic			
Deep Muscle		Rectal	
Initial	Final	Initial	Final
98.7	105.7	99.7	99.8

The Council on Physical Therapy voted to accept the Aloe Short Wave Diathermy Unit, Admiral Model, for inclusion on its list of accepted devices.

MAICO AUDIOMETER, MODEL D-8, ACCEPTABLE

Manufacturer: The Maico Company, Inc., 2632-36 Nicollet Avenue, Minneapolis.

Tests were made on the Maico Audiometer, Model D-8, Serial No. 2987, to determine whether or not the instrument met the requirements of the American Standards Association Proposed Minimum Specifications for Audiometers and for General Diagnostic Purposes Z24.5, as revised Dec. 1, 1937. These specifications coincide with the Council's "Requirements for Consideration of Audiometers" (THE JOURNAL, Feb 25, 1939, p. 732).

Maico Audiometer, Model D-8.

A test was made on this audiometer to determine how closely the zero setting of the hearing loss dial agreed with the reference normal threshold which has been established from the work done by the National Health Institute. To obtain the reference normal threshold it was found that the hearing loss dial would have to be set as follows:

Frequency (Cycles per Second)	Setting of Hearing Loss Dial
128	0.2
256	2.8
512	4.8
1,024	3.8
2,048	—1.2
4,096	8.2
8,192	1.3

It will be noted that the threshold value is within a 5 decibel tolerance except at 4,096 cycles.

The tests were conducted by operating the audiometer from a power source of alternating current of 60 cycles per second at 115 volts.

Numbers refer to paragraphs of the specification.

1. Range of frequency of test tone. Complies with specification.
2. Control of intensity. Complies with specification.
3. Accuracy of frequency. Complies with specification.
4. Audiometer calibration. Complies with specification.
5. Purity of tone. Complies with specification.
6. Extraneous noises. Complies with specification.

The Council on Physical Therapy voted to accept the Maico Audiometer, Model D-8, for inclusion on its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

SODIUM CITRATE (See the Revised Supplement to New and Nonofficial Remedies, 1941, p. 26).

The following dosage forms have been accepted:

HOSPITAL LIQUIDS, INC., CHICAGO

Sodium Citrate 2½% W/V in Isotonic Sodium Chloride Solution: 35 cc. and 70 cc. in Filtrair Haemovac containers of 720 cc. capacity. A sterile distilled water solution of sodium citrate 2.5 per cent (W/V) and sodium chloride U. S. P. 0.9 per cent (W/V) contained under reduced pressure of not more than 100 mm. of mercury in a specially adapted bottle designed for the aspiration, citration and gravity administration of 250 cc. or 500 cc. of whole blood in indirect transfusion by a closed technic.

U. S. trademark (Haemovac) 379,042.

Sodium Citrate 2½% W/V in Isotonic Sodium Chloride Solution: 35 cc. and 70 cc. in Filtrair Sedimentation Haemovac containers of 600 cc. capacity. A sterile distilled water solution of sodium citrate 2.5 per cent (W/V) and sodium chloride U. S. P. 0.9 per cent (W/V) contained under reduced pressure of not more than 100 mm. of mercury in a specially adapted bottle designed for the aspiration, citration and storage during the sedimentation of 250 cc. or 500 cc. of whole blood in the preparation of plasma. The container may also be used for the gravity administration of the citrated whole blood in indirect transfusion by a closed technic.

U. S. trademark (Haemovac) 379,042.

Sodium Citrate 2½% W/V in Isotonic Sodium Chloride Solution: 35 cc. in Filtrair Centrifuge Haemovac container of 315 cc. capacity. A sterile distilled water solution of sodium citrate 2.5 per cent (W/V) and sodium chloride U. S. P. 0.9 per cent (W/V) contained under reduced pressure of not more than 100 mm. of mercury in a specially adapted bottle designed for the aspiration, citration and centrifugation of 250 cc. of whole blood in the preparation of blood plasma.

U. S. trademark (Haemovac) 379,042.

NICOTINIC ACID AMIDE (See New and Nonofficial Remedies, 1941, p. 556).

The following dosage form has been accepted:

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

Tablets Nicotinic Acid Amide: 50 mg.

RHUS PREPARATIONS (See New and Nonofficial Remedies, 1941, p. 405).

The following preparation has been accepted:

PARKE, DAVIS & COMPANY, DETROIT.

Poison Ivy Extract: Packages of six 1 cc. ampuls.

Poison Ivy Extract.—A solution in almond oil of a substance extracted from the dried leaves of poison ivy (Rhus toxicodendron).

Actions and Uses.—Poison ivy extract is used for prevention or treatment of the symptoms of the dermatitis produced through contact with Rhus toxicodendron.

Dosage.—The prophylactic dose is 1 cc. injected intramuscularly; for individuals who may habitually come in contact with the plant the original dose is repeated until three 1 cc. injections have been given at weekly intervals. The therapeutic dose is 1 cc. given intramuscularly and repeated at twenty-four hour intervals. Two to four doses usually suffice to control the discomfort.

The dried leaves of Rhus toxicodendron are extracted with toluene. The resulting extract is dehydrated and decolorized and then concentrated to a solid. The residue is dissolved in sterile almond oil containing 0.5 per cent chlorobutanol as a preservative; sufficient oil is used to make a 15 per cent extract.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 19, 1942

TOXICITY OF HUMAN PLASMA

The intradermal test for toxicity of plasma suggested by Levine and State [1] of the University of Minnesota may prove to be a valuable diagnostic aid in clinical medicine and serve as a guide to the preparation of nontoxic commercial products. Contrary to some published views [2] and to the printed instructions on many lyophilized commercial plasmas, the intravenous administration of human plasma is not "entirely innocuous." Polayes and Squillace,[3] for example, recently reported a "near fatal" anaphylactic shock on transfusion of 1 patient with lyophilized plasma, a reaction from which the patient recovered only after heroic anti-shock therapy. Subsequent tests revealed an in vitro incompatibility between the lyophilized plasma and the patient's own blood, a prompt agglutination of the patient's erythrocytes taking place, which Polayes assumed to be due to isoagglutinins in the commercial plasma. As a routine precautionary measure he suggested a pretransfusion matching of plasma and the recipient's blood. "In very few cases is the emergency so great as not to afford ample time for such cross matching."

The Minnesota clinicians found that such toxic reactions are much more common than the report of this single case would imply. Of 109 patients tested by them, 20 per cent were demonstrably hypersensitive to one or more of their monovalent samples of plasma. On transfusion the toxic plasma gave distinct nonfatal anaphylactic reactions, the symptoms including headaches, dyspnea, epigastric distress, chills, fever and urticaria.

In order to determine the cause of this toxicity, Levine and State employed numerous technical methods, the most promising being the intradermal injection of numerous samples of plasma into the prospective recipient. All plasmas used in their dermal tests were siphoned from freshly drawn human blood to which citrate and sulfanilamide had been added as anticoagulant and preservative. The erythrocytes were allowed to sediment for from twenty-four to seventy-two hours at 4 to 8 C. before the plasma was removed. During this time autolysis or leukocytic digestion of the erythrocytes presumably took place. The tests were made by the intradermal injection of 0.05 cc. of undiluted plasma, and the reactions were read ten, thirty and sixty minutes later. Positive dermal allergy was indicated by the formation of a wheal from 0.8 to 3 cm. in diameter plus a surrounding zone of erythema. The erythema alone was without diagnostic significance. The wheal usually appeared in ten minutes, reached a maximum in thirty minutes and began to fade by the end of one hour.

Of 109 patients tested with three or more plasmas, 21 were positive to one or more samples. Sensitivity to a given plasma was not confined to persons of any one blood group. Positive reactions did not occur in all patients to any one plasma sample. Transfer of dermal sensitivity from reacting to nonreacting patients was readily effected.

Nine of the plasma allergic persons were afterward given transfusions with the same plasma. Seven of the 9 exhibited typical nonfatal allergic shock on intravenous administration of this plasma. Other allergic persons were given control injections with dermonegative plasma without producing recognizable posttransfusion symptoms.

The Minnesota clinicians consider three possible explanations for the observed toxicity: First, the reacting plasmas might conceivably contain food proteins or other extraneous allergens; second, they might contain isoagglutinins, or, finally, they might contain free erythrocytic haptens, presumably set free as a result of autolysis. Aubert and his associates [4] of the S. W. London Blood Supply Depot have recently reported the presence of both A and B agglutinogen in their routine serum and plasma samples. Approximately 50 per cent of all their group A plasmas contained group A hapten. Nearly 85 per cent of their group B plasmas contained group B substance. They found that, if A and B plasmas are pooled in the proportion of 1 part of B to from 2 to 5 parts of A, negligible agglutinogen titers result. This is a convenient proportion, since the ratio of A and B donors in the British Isles is approximately 5 : 1.

Levine and State have confirmed these results and believe that the presence of A and B substances in their plasmas is the principal cause of the positive local allergic toxicity and of the subsequent systemic

1. Levine, Milton, and State, David: Skin Sensitivity to Human Plasma, Science **96**: 68 (July 17) 1942.

2. Strumia, M. M.; Wagner, J. A., and Moraghan, J. F.: The Intravenous Use of Serum and Plasma, Fresh and Preserved, Ann. Surg. **111**: 623 (April) 1940.

3. Polayes, S. H., and Squillace, J. A.: Near Fatal Reaction to Transfusion with Dried Human Plasma Solution, J. A. M. A. **118**: 1050 (March 28) 1942.

4. Aubert, E. F.; Boorman, K. E., and Dudd, B. E.: The Agglutinin Inhibiting Substance in Human Serum, J. Path. & Bact. **54**: 89 (Jan.) 1942.

anaphylaxis. This belief is strengthened by the fact that persons with dermal sensitivity to A or B plasma are also sensitive to Witebsky's corresponding purified A or B substance. In their hands, however, pooling of A and B plasmas in a 1:1 ratio failed to neutralize the skin reacting substance. Aubert's recommended 5:1 ratio was not tested.

Since a negative skin test precludes the possibility of intravenous plasma shock, Levine and State recommend that whenever possible a pretransfusion dermal test should be used for the selection of a nonreacting plasma.

THE CHIROPRACTIC THEORY OF PATRIOTISM

The National Serological Society at Davenport, Iowa, has mailed to the chiropractors of the country a letter dated September 3 suggesting that the recipient order so many hundred or so many thousand copies of a four page antivaccinationist pamphlet. The letter contains the following irrelevant statements:

> We have records from the Surgeon General showing that syphilis in compulsory vaccination states is thirty times more prevalent than in states where compulsory vaccination is prohibited by law! Hughes' practice of medicine 14th edition page 184 lists syphilis as one of the complications caused by smallpox vaccination.

The secretary of a state board of health writes that the pamphlet is being circulated among superintendents of schools in which that board of health is promoting a campaign for immunization.

The letter and the pamphlet indicate that the president of this organization is Cash Asher. Asher is the author of a tirade against the editor of THE JOURNAL in particular, and the American Medical Association in general, entitled "Your Life Is In Their Hands." According to the *International Chiropractic News* for July-August 1942 he is also public relations director of the International Chiropractors Association.

The pamphlet itself, entitled "Under the Red White and Blue," contains the amazing misinformation that

> the British government abolished compulsory vaccination and inoculations of all kinds in the army, navy and marine corps in 1939.

It quotes the Surgeon General's report for 1919, volume 1, page 38, as giving

> the number of admissions to hospitals in 1918 on account of vaccina, the disease caused by vaccination, as 10,830. The report for 1918 gives the number of admissions to hospitals during the year 1917 on account of vaccina and typhoid vaccina as 19,608.

It then adds:

> No information is contained in these reports as to the number of deaths resulting from inoculations.

The pamphlet discusses with complete disregard for facts or statistical science the rates of smallpox in Italy and Mexico as compared with the United States.

After referring to a United Press release dealing with the 28,585 cases of jaundice associated with inoculation against yellow fever, the pamphlet adds:

> It is doubtful if we would have that many cases of yellow fever if we sent our entire army into the jungles of Africa.

Mr. Asher has of course no knowledge of yellow fever and probably not enough about jaundice to warrant a comparison.

The pamphlet says:

> An investigation by Congress will reveal that thousands and thousands of American soldiers are collapsing after being inoculated. Evidence indicates that between 20 and 40 per cent have to be hospitalized, and that many are incapacitated for service. . . . Congress should find out why England abolished compulsory inoculations in the armed forces. . . . Who is profiting from the sale of serums to the Army and Navy? . . . We are glad to serve our country, but why maim and immobilize soldiers before they have a chance to serve?

These statements are typical of the lies, false insinuations and similar statements dangerous to Army and public morale promulgated by those who would hinder the war effort.

In time of war, epidemics constantly threaten. The protection of troops against epidemic disease by routine immunization is accepted as sound practice by the armies of all the warring nations. At a time when the health of all the nation, both civilian and armed forces, is essential to eventual victory, such totally unscientific and malicious propaganda continues to arise from sources like Cash Asher. And he is public relations director of the International Chiropractors Association!

CHEMISTRY IN RELATION TO THE FOOD INDUSTRY

The program of the one hundred and fourth meeting of the American Chemical Society held in Buffalo, September 7 to 11, emphasized once more the importance of chemistry in the food industries. The numerous recent contributions of chemistry in this field have been little short of amazing. Many an amateur gardener now routinely dips his cuttings in a solution of indoleacetic acid to accelerate the development of root hairs and thus aid in the establishment of a new plant. Treatments with thiamine probably do not do as much for plants as many people hoped they would, but dipping the roots into a solution containing thiamine hydrochloride may help a plant to withstand the shock of transplanting. Gardeners and commercial fruit growers alike now spray fruit with chemicals such as thiourea or naphthalene acetic acid to reduce the loss of pears and apples resulting from premature dropping from the trees. Presumably these act by some kind of humoral mechanism and cause the fruit to remain

on the tree until ripe. In a recent series of tests at the Massachusetts Agricultural Experiment Station the total drop of fruit was reduced from 53 per cent in unsprayed trees to 25 per cent in those that had been treated with naphthalene acetic acid.

Chemistry is continually helping in man's battle against insects. Many kinds of seeds now are disinfected with organic compounds containing either mercury or copper, thus preventing loss through insects or fungus growth. Plant authorities of the Kansas Agricultural Extension Service claim that each dollar invested in seed treatment to control kernel smut of sorghum can be expected to return thirty-five dollars in profit. Treatment of plants to prevent insect damage is essential and new developments are appearing from time to time. Hydrocyanic acid gas is much used to control the confused flour beetle. Pyrethrum is used in many contact sprays, and the suggestion has been made that it be supplemented with a synthetic compound derived from castor oil and known as isobutyl undecylenamide or by the more pronounceable name IN-930 of the du Pont Company in order to obtain a more efficient fumigant.

Among the symposiums of the meeting of the American Chemical Society were several especially timely, such as one on methods for the preservation of foodstuffs and their application in the war effort. Papers were presented on the dehydration of meats, fruits and vegetables, on the latest developments of freezing foods and on the cold storage of foods by modern methods. Other papers in this symposium dealt with the nutritional aspects of processing foods and on food requirements for overseas use. The introduction of a new chemical compound on products used by man may also introduce new industrial hazards to workmen and consumers. It is apparent from the nature of the program of the meeting of the American Chemical Society that the physiologic aspects are being given careful consideration.

Current Comment

LIEUT. COL. SAM F. SEELEY DETACHED FROM PROCUREMENT AND ASSIGNMENT SERVICE

Under Medicine and the War in this issue of THE JOURNAL appears an announcement of the detachment of Lieut. Col. Sam F. Seeley from the position of executive officer of the Procurement and Assignment Service and his transfer to active duty with the Army Medical Department. Since its establishment in October 1941 Lieut. Col. Sam F. Seeley has held the position as executive officer of this agency, a position which demanded pioneer work, since a similar agency had not previously existed in our governmental system. In this position he made many friends by his invariable cordiality and geniality. He traveled throughout the country speaking to innumerable organizations of physicians, dentists and veterinarians and earned for this agency their respect and cooperation. All who were associated with Lieutenant Colonel Seeley in this work wish him the utmost success in the new assignment to which he has been called.

CITRIC ACID IN BONE

A knowledge of the chemistry of tissues aids in the understanding and interpretation of the physiologic reactions and processes in which body substances participate. In certain instances the presence of a chemical compound is established many years before its biologic significance is appreciated. Indeed, information is still lacking concerning the part played by some body components in metabolic transformations. One of the latter group of substances is citric acid, whose presence in the animal organism has been known since 1888, when it was first isolated from cow's milk. Some forty years later citric acid was isolated from normal human urine, and this organic acid has since been shown to occur in relatively low concentrations in various tissues of the body. The concentration of citric acid in soft tissues has been reported as falling in the range of 0.1 to 2.0 mg. per hundred grams of tissue, whereas the acid is present in considerably greater amounts in body fluids (20 to 200 mg. per hundred cubic centimeters of fluid).[1] Recently, Dickens,[2] in the course of an investigation of the citric acid content of tumor tissue, found that the hard substance of bone constitutes a heretofore unsuspected store of citric acid which may amount to some 70 per cent of that contained in the whole body. On a dry, fat and protein free basis bone was shown to contain over 1 per cent of citric acid. The analytic data were confirmed by actual isolation in 80 per cent of the yield calculated from analysis. Variations in the citrate content of bone, probably due to endocrine and dietary factors, are also reported. The variations in citric acid content of bone greatly exceeded those of the other bone constituents, suggesting that the citrate is in a readily available form in vivo. However, in vitro the organic acid could not be readily extracted from dried powdered bone by water, alcohol or ether. The fact that so large a quantity of a familiar substance has heretofore escaped detection by bone analysis is surprising, but most accurate and complete analyses have been made on bone ash; thus the citrate would presumably appear in the carbonate fraction. The nature of the organic combination of bone cations has long been an almost uninvestigated field, and a systematic study of bone for the presence of other physiologically important organic acids would now appear indicated. It may be tentatively assumed that the citrate may be present in simple or complex combination with calcium, although the nature of the distribution of citric acid in bone, and its possible roles in structural and metabolic functions in this tissue, are important problems for future investigations.

1. Smith, A. H., and Orten, J. M.: J. Nutrition **13**: 601 (June) 1937.
2. Dickens, Frank: Biochem. J. **35**: 1011 (Sept.) 1941.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

DR. SEELEY TRANSFERRED FROM PROCUREMENT AND ASSIGNMENT SERVICE

The Directing Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians has formally expressed its appreciation of the services rendered by Col. Sam F. Seeley, who has been transferred to military duty. Following is the text of the resolution adopted:

The transfer of Lieut. Col. Sam F. Seeley from his connection with the Procurement and Assignment Service to active military duty causes a great loss. Colonel Seeley, who has acted as executive officer since the beginning of this service, has been transferred to military duty, which is in keeping with the policy recently adopted by the War Department. His training and experience with the Medical Corps of the Army in his professional capacity amply justifies such a step.

The Directing Board of the Procurement and Assignment Service wishes to take this opportunity of expressing to the Surgeon General of the United States Army i s very deep appreciation for the valuable service which Colonel Seeley has rendered during its period of organization and functions.

The Directing Board expresses to Colonel Seeley its deep appreciation for the great sacrifice which he has made in dislocating himself from actual military duty to serve with us in an executive capacity. He has been most unselfish and has given unstintingly of his time, energy and patience in helping to solve many of the problems connected with the functioning of the Procurement and Assignment Service. He has not only labored faithfully at our office in Washington but he has traveled over the United States, contacting many of his professional confrères and explaining to them the purpose for which the Procurement and Assignment Service was organized. His services have been most valuable and have helped to take us a long way in accomplishing the objectives for which it was created.

The Directing Board expresses to Colonel Seeley its gratitude and thanks for his unselfish devotion to the organization of the Procurement and Assignment Service and wishes for him the greatest success in his new assignment.

FRANK H. LAHEY, M.D., Chairman.
HARVEY B. STONE, M.D.
HAROLD S. DIEHL, M.D.
JAMES E. PAULLIN, M.D.
C. WILLARD CAMALIER, D.D.S.

PHYSICIANS FOR EMERGENCY BASE HOSPITALS

Units of physicians are being organized to help care for casualties and other patients who may be moved, in case of enemy attack, from hospitals in exposed cities to emergency base hospitals in the interior, James M. Landis, director of the Office of Civilian Defense, announced on September 7. The units are being established in selected medical schools and hospitals in the coastal states. Invitations to form such units as part of the joint program of the Medical Division of the Office of Civilian Defense and the Public Health Service for wartime protection of the civilian population were issued by the Surgeon General of the U. S. Public Health Service (see THE JOURNAL, September 5, p. 57).

The new affiliated units of physicians will be assigned to emergency base hospitals whenever it becomes necessary to supplement the existing staff. Each group will operate as a unit. It will be composed of fifteen physicians and will include specialists in internal medicine, general surgeons, orthopedic surgeons, a dental surgeon, a pathologist and a radiologist. All the physicians will receive commissions in the U. S. Public Health Service Reserve but will be called to active duty only if hospital patients in their own regions must be removed to emergency base hospitals or if the civilian population is moved because of enemy action. Unless such an urgent need arises, the physicians will remain on an inactive status for the duration of the war.

EQUIPMENT FOR EMERGENCY MEDICAL SERVICES

The chairman of the State Health Preparedness Commission, Assemblyman Lee B. Mailler, said, in a recent report, that one of the most serious problems of the commission at present is equipment. The commission has encouraged communities to obtain a minimum amount, at least, of emergency medical field unit equipment from their own resources. Many communities which have done this have available blankets, cots, stretchers and first aid kits. The commission was able to secure federal approval for allocating funds to nine hospitals in strategic New York areas and nine in New York City to assist in the development of blood plasma banks. These hospitals agreed to build up a reserve blood plasma equaling 1 unit (equivalent to 1 pint of whole blood) for each hospital bed, which reserve is to be used for civilian casualties. For example, the Strong Memorial Hospital in Rochester, N. Y., received a federal grant of $2,000 and has already in operation an ideal plant for rapid production of dried plasma, and the Rochester Red Cross, with the assistance of the hospital, has been securing donors at the rate of 4,000 a month. The Red Cross will hold in reserve, chairman Mailler said, for civilian use a large supply of frozen blood plasma which will be made available to any communities needing it in case of emergency. Efforts are being made also to establish a mobile plasma unit and processing plant at the state laboratory in Albany, which would visit the smaller communities of the state to collect blood and thus form a reserve of plasma available especially for these communities.

AMERICAN FLYING SERVICES FOUNDATION

The object of the medical division of this organization is to repair the physical defects of young men who desire to serve in the flying forces of the United States. When physical defects bar them from becoming military aviators they may be referred, provided they have the makeup that qualifies them as aviators, to the American Flying Services Foundation, which places them in the hands of qualified physicians for medical or surgical treatment, including dentistry and hospitalization, in order to make them available as cadets for the flying services. The flight surgeons of the Army and Navy who examine these boys unofficially refer them to the foundation, which through its regional medical committees arranges and finances such medical treatment and hospitalization as may be necessary for the foregoing purpose. The foundation pays the hospital, the doctor and the dentist for such work as may be done, bearing in mind first of all the use of the applicant's own family physician or dentist whenever possible and desired by the applicant. The medical division of the foundation looks at each individual's problem from the flight surgeon's point of view and does only those things that it is asked to do. According to Dr. Samuel M. Strong, medical director of the foundation, this is purely a voluntary organization in which the heads of the departments receive absolutely no remuneration directly or indirectly. The

American Flying Services Foundation, which was founded by World War I fliers for the fliers of today, has an advisory board and a board of trustees, a medical council and regional medical committees. The medical headquarters are at 140 East Fifty-Fourth Street, New York. The report of the medical division for the week ended August 15, for example, shows that the foundation received applications from young men in nineteen states.

MEDICAL AND SURGICAL RELIEF COMMITTEE OF AMERICA

This committee, with headquarters at 420 Lexington Avenue, New York City, has in the last two years furnished supplies valued at $466,815.95 to needy hospitals, evacuation centers and welfare organizations in the United States, Alaska and Hawaii, to Russian relief groups, to the British Red Cross, to the American Friends Ambulance Unit in China and to the Free French. At the annual meeting of the executive board of the committee in New York on August 19 Dr. Joseph P. Hoguet, national medical director, said that the greatest demand had been for medical and surgical instruments, antitoxins, vitamin concentrates and the sulfonamide drugs. In view of the increasing number of the physicians who serve on this committee who have gone into the military service, plans are being made to form a group of nonprofessional men and women to supplement the work of physicians affiliated with the committee. Efforts also are being made to increase the present professional membership of the committee from 415 to 600 by the end of the coming fiscal year. In a news release the committee acknowledged contributions of drugs and instruments from numerous organizations throughout the country, including medical societies, hospitals, woman's auxiliaries, clinics, pharmaceutic houses and other manufacturing companies.

FIGHTERS IN WHITE: A MOVIE

The New York State Department of Health in cooperation with the New York State Health Preparedness Commission has produced for the State War Council a sound motion picture entitled "Fighters in White," which shows the operation of the emergency medical services established in the state of New York in accordance with procedures outlined by the United States Office of Civilian Defense. To the first preview given in Albany, August 25, were invited the governor, the State War Council, the heads of state departments, the mayor and other officials. A second preview was given in New York City the following day, to which Mayor LaGuardia, Dr. Ernest L. Stebbins, commissioner of health of the city, and others were invited. The scenario was written by the research editor of the Health Preparedness Commission, Benjamin Martin, and the technical adviser was Dr. John J. Bourke, research director of the Health Preparedness Commission.

PARACHUTES TO DROP DOCTORS AND NURSES

Regional Director J. M. Loughlin of the first civilian defense area recently announced the formation of a parachute corps to drop doctors and nurses to stricken areas in out of the way places. The corps was organized by the Civil Air Patrol in New England under the direction of Major R. S. Fogg, regional commander of the Civil Air Patrol, on the rolls of which already are twenty-five doctors and thirty nurses, some of whom own their own airplanes, according to the Boston *Globe*.

FLORISTS FORM AMBULANCE CORPS

The Philadelphia Council of Defense announced on July 11, according to the Philadelphia *Record*, that the florists of the city had formed an emergency ambulance corps, utilizing their trucks as ambulances and equipping them with stretchers and first aid equipment and having their drivers instructed in first aid under the supervision of Dr. A. P. Keegan, chief of the Medical Corps of Defense Council of Philadelphia.

UNITED CHINA RELIEF

The president of the United China Relief, Paul G. Hoffman, is reported to have said on August 4 that funds sent by this organization to China in the first six months of 1942 amounted to $1,861,261, which provided for the manufacture of 4,120,000 doses of cholera and typhoid vaccine, provided medical care for wounded soldiers, aided in expanding the emergency medical service training school and helped expand China's industries. The report, made public by United China Relief headquarters in New York, further revealed that relief had been provided for 361,445 refugees from Hong Kong, Burma and the East Indies, that aid had been sent to 21,000 orphan children and that four Christian colleges had been reestablished in the interior of China. Mr. Hoffman stated that the disbursements in China of United China Relief are handled chiefly through the National Red Cross Society of China, the Chinese Y. M. C. A., Protestant and Catholic missions and other institutions. The workers, except for a few full time administrators, serve without pay.

RURAL DRESSING STATIONS IN DELAWARE

More than a hundred and seventy-five dressing stations were being established in private dwellings and garages throughout Newcastle County in Delaware, according to the Wilmington *Journal* of July 11, so that, in case of air raids in this rural area, civilian injuries might be treated immediately. A typical dressing station in this group is said to comprise three cots and room for many more, and a staff of two trained nurses and thirteen other women. The more serious injuries would be treated at the twenty-two casualty stations in Newcastle County, which are located in schools, firehouses and other public buildings; and those requiring still further medical care will be moved from these stations to hospitals in Wilmington.

COURSE IN CHEMICAL WARFARE

A course sponsored by the Office of Civilian Defense, the Johns Hopkins University and the Chemical Warfare School had up to July 12 been attended by some forty-five doctors from six states, seventeen of whom from Baltimore and vicinity completed the course on July 11. The instruction, which takes in protection against war gases and treatment of chemical casualties, also will be given to laymen.

PHYSICIANS WILLING TO GO INTO INDUSTRIAL MEDICINE

In the office of the state medical chairman for the Procurement and Assignment Service there are lists of physicians who have indicated their willingness or desire to go into industrial medicine. The names of these physicians may be secured by writing to the state medical chairman in the state in which the industry is located.

THEOBROMINE AND CAFFEINE

Recently the War Production Board issued Conservation Order M-222 to control the use of theobromine and caffeine. For the purposes of the order, theobromine means 3:7-dimethylxanthine, whether synthetic or natural, in crude or refined form, and the term shall include any compound of theobromine but shall not include standard dosage forms (tablets, capsules, ampules, solutions and so on). Caffeine means 1:3:7-trimethylxanthine and is subject to the same general definition as theobromine.

On and after Oct. 1, 1942 no producer shall use any theobromine or caffeine other than stocks in his hands on said date, no producer or distributor shall deliver any theobromine or caffeine, and no person (other than a wholesaler or retailer) shall accept delivery of any theobromine or caffeine except as specifically authorized by the Director General for Operations on application, or except under the exemption provided, which states that "this order shall not be required with respect to the delivery to any person or the acceptance of delivery or use by any person of 2 pounds or less of theobromine and 2 pounds

or less of caffeine during any one calendar month. Such use or delivery may be made without regard to preference ratings."

Each person seeking authorization by the Director General for Operations to accept delivery of and use theobromine or caffeine during any calendar month shall place his purchase order with his supplier on or before the 12th day of the month preceding the month for which authorization to accept delivery is requested and shall file two copies of Form PD-600 with the War Production Board on or before such date. He shall also send one copy of such form to his supplier along with his purchase order. Copies of Form PD-600 may be obtained at the local offices of th War Production Board. Any producer seeking authorization to use theobromine or caffeine during any calendar month shall file two copies of Form PD-600 with the War Production Board on or before such date. Each producer and each distributor seeking authorization to make deliveries of theobromine or caffeine shall file with the War Production Board on or before Sept. 20, 1942 and on or before the 20th day of each month thereafter three copies of Form PD-601.

Unless otherwise authorized or directed by the Director General for Operations, no producer shall hereafter methylate theobromine to caffeine except to fill purchase orders for caffeine which he has been specifically authorized to fill and/or to maintain a practicable minimum working inventory of caffeine. No producer shall, during any calendar month, methylate any theobromine to caffeine unless and until provision has been made by such producer to make all deliveries of theobromine which have been directed by the Director General for Operations to be made by him during such month.

The prohibitions and restrictions of this order shall apply not only to deliveries to other persons, including affiliates and subsidiaries, but also to deliveries from one branch, division or section of a single enterprise to another branch, division or section of the same or any other enterprise under common ownership or control.

Producers and distributors are to notify their regular customers of this order as soon as possible, but failure to give such notice does not excuse any one from the obligation of complying with its terms. All reports, applications and communications should be addressed, unless otherwise directed, to War Production Board, Health Supplies Branch, Washington, D. C., Ref: M-222.

AVIATION MEDICAL EXAMINERS

A routine course of instruction to qualify army medical officers for duty as aviation medical examiners recently began at the School of Aviation Medicine, Randolph Field, Texas. The following officers were enrolled:

ALABAMA

George K. Spearman, 1st Lieut., Anniston.

ARIZONA

Angus J. Fillmore, Captain, Mesa.

ARKANSAS

Neil H. Sullenberger, 1st Lieut., Camden.

CALIFORNIA

Lester F. Allison, Captain, Fresno.
Lyman H. Conner, 1st Lieut., Burbank.
Albert E. Fleming, 1st Lieut., Fresno.
Andrew B. Goddard, 1st Lieut., Mill Valley.
Edward Liston, Captain, Palo Alto.
Harvey C. Maxwell, Major, Santa Ana.
Robert L. Merrill, 1st Lieut., Hemet.
Frank A. Moran, Captain, San Francisco.
Lionel Ovsey, 1st Lieut., Los Angeles.
Montimore C. Shwayder, 1st Lieut., San Francisco.

DISTRICT OF COLUMBIA

George L. Ball, Major, Washington.
William E. Barry, Major, Washington.
Homer L. Comparette, Captain, Washington.
Edwin E. Corcoran, Captain, Washington.
Frank E. Gibson Jr., Captain, Washington.
Samuel C. Harwood, Captain, Washington.
Richard L. Jackson, 1st Lieut., Washington.
Edward A. Kelly, Captain, Washington.
Austin Lowrey Jr., Major, Washington.

GEORGIA

Adolph S. Sanchez, Captain, Eatonton.

ILLINOIS

Edward G. Cada, Captain, Berwyn.
William W. Curtis, 1st Lieut., Chicago.
Louis S. Frank, 1st Lieut., Chicago.
Dominic J. Haftkowski, 1st Lieut., Chicago.
Edgar O. Hughes, 1st Lieut., Washington.
Walter S. Miller, Captain, Rockford.
Theodore C. Papermaster, 1st Lieut., Chicago.
Jack L. Restivo, 1st Lieut., Chicago.

INDIANA

Eugene W. Austin, 1st Lieut., Anderson.
Archie E. Brown, 1st Lieut., Indianapolis.
William B. Challman, 1st Lieut., Mount Vernon.
Kenneth E. Comer, 1st Lieut., Mooresville.
James H. Gosman, 1st Lieut., Jasper.

IOWA

George M. Hass, Captain, Chariton.
Rusl P. Noble, 1st Lieut., Cherokee.
Ralph H. Riegelman, Captain, Des Moines.
John W. Saar, 1st Lieut., Donnellson.
Rudolph J. Wieseler, 1st Lieut., Avoca.
Ralph W. E. Wise, Captain, Dallas Center.

KANSAS

Raymond J. Beal, Captain, Fredonia.

KENTUCKY

Howell, J. Davis, Major, Owensboro.

LOUISIANA

Samuel A. Barkoff, Captain, New Orleans.
Philip A. Belleggie, 1st Lieut., Pineville.
Harry M. Trifon, 1st Lieut., Shreveport.

MASSACHUSETTS

Carlton F. Bassow, 1st Lieut., Athol.
Stephen Brown, 1st Lieut., Northampton.
William H. Sheldon, Major, Cambridge.

MICHIGAN

Glendon J. Bush, Captain, Detroit.

MINNESOTA

Erling T. Hauge, Captain, Minneapolis.
Albert D. Mattson, 1st Lieut., St. Paul.
Robert F. Rushmer, 1st Lieut., Rochester.

MISSISSIPPI

Blondy S. Henry, Captain, Darling.
Arthur P. Vandergrift, 1st Lieut., Hernando.

MISSOURI

Jack Hartman, 1st Lieut., Sikeston.
Elvin D. Imes, 1st Lieut., St. Joseph.
James E. Keeler, Captain, Kansas City.
Louis N. Speer, 1st Lieut., Little Blue.
Theodore R. Stepman, Captain, St. Louis.

NEW JERSEY

Kenneth M. Bremer, 1st Lieut., East Orange.
James P. Citta, Captain, Toms River.
Edward G. Gullord, 1st Lieut., Upper Montclair.
Alfred H. Hill, 1st Lieut., Montclair.
Arthur A. Nadler, Major, Painfield.
John O. Nestor, 1st Lieut., Newton.
Leo P. Schultz, 1st Lieut., West New York.
Seymour E. Spivack, Captain, Elizabeth.

NEW YORK

Mario Bonaquisto, Captain, Schenectady.
Harold C. Bowser, 1st Lieut., Elmira Heights.
Vincent M. Cremona, 1st Lieut., New York.
John A. Crowther, 1st Lieut., Honeoye.
Alexander M. Earle Jr., 1st Lieut., New York.
Francis C. Keil, Captain, New York.
Harry P. Loomer, Captain, Brooklyn.
Lester Mermell, 1st Lieut., Middletown.
Russell C. Parker, 1st Lieut., Glen Cove.
Henry Ross, Major, New York.
Howard F. Rustin, 1st Lieut., Brooklyn.
Julius Steckler, Captain, New York.
Sidney E. Wanderman, Captain, New York.
Herbert R. Zatzkin, Captain, Brooklyn.

NORTH CAROLINA

Arthur B. Croom, 1st Lieut., Maxton.
John C. Montgomery, Captain, Charlotte.
Vance B. Rollins, Captain, Henderson.
Charles D. Rollins, 1st Lieut., Henderson.

OHIO

Solomon Bershadsky, 1st Lieut., Cincinnati.
John N. Carnes, Captain, Gallipolis.
Charles J. Deishley, Captain, Columbus.
Hiram H. Hardesty, Captain, Cleveland Heights.
Samuel T. Moore, 1st Lieut., Cleveland.

OKLAHOMA

Dan R. Sewell, Major, Oklahoma City.

OREGON

Joseph M. Cronin, Captain, Klamath Falls.

PENNSYLVANIA

Harold H. Evans, 1st Lieut., Lewisburg.
Joseph M. Faso, 1st Lieut., Erie.
Robert E. Milburn, 1st Lieut., McKee's Rocks.
Willis A. Redding, Captain, Towanda.
George A. Silver, 1st Lieut., Philadelphia.
Maurice W. Snyder, 1st Lieut., Manor.
William C. Vernocy, Captain, Coraopolis.

TENNESSEE

John M. Chambers Jr., 1st Lieut., Memphis.

TEXAS

Albert M. Allison, Major, Alice.
James F. Beall, 1st Lieut., Nacogdoches.
Earl T. Crim, 1st Lieut., Greenville.
Joseph L. Fenlaw, 1st Lieut., Gilmore.
Eugene Flynn, Captain, Refugio.
John R. Forsythe, Captain, Waco.
Joseph B. Harris, 1st Lieut., Midlothian.
Robert H. Johnson, Captain, Hamlin.
Roger K. Kalina, Captain, Houston.
John B. Terry, 1st Lieut., San Antonio.

UTAH

Sherman M. Morgan, 1st Lieut., Murray.

VIRGINIA

Nowell D. Nelms, 1st Lieut., Mathews.

WISCONSIN

Alexandre Nadeau Jr., 1st Lieut., Marinette.

CANADA

Alfred F. Goggio, Captain, Toronto, Ont.

ORGANIZATION SECTION

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Bill Introduced.—H. R. 7534, introduced by Representative Eliot, Massachusetts, proposes to amend and extend the provisions of the Social Security Act. Among other changes, this sixty-eight page bill provides for systems (1) of disability insurance benefits, including medical, surgical, institutional, rehabilitation and other services to be supplied by the Social Security Board; (2) of temporary disability or sickness benefits; (3) of maternity benefits conditioned on compliance with such regulations with respect to antepartum, confinement and postpartum care as may be prescribed by the board, and (4) of hospitalization benefits of not less than $3 nor more than $6 for each day of hospitalization, such benefits to be available to the wife and children of the employee. In lieu of the payment of such benefits to beneficiaries, the bill proposes, the board may make arrangements with accredited hospitals for the payment of the reasonable cost of hospital services. The base of the act will be broadened to embrace within the Old Age and Survivors' Insurance provisions certain employment now exempt, such as employment in connection with charitable, scientific and educational institutions, and what the bill renames as "social insurance contributions" by employers and employees will be increased to 5 per cent for the calendar years 1943, 1944 and 1945, to 5.5 per cent for the calendar years 1946, 1947 and 1948, and to 6 per cent for each calendar year thereafter.

WOMAN'S AUXILIARY

Minnesota

Mrs. E. M. Baldigo, Red Wing, Minn., opened her home to the Goodhue County medical auxiliary recently. Mrs. E. H. Juers presented material on the use of puppet shows in teaching school children the reasons for vaccination and inoculations.

A successful Red Cross benefit party in the form of a show entitled "The Gay Nineties" was given recently by the Hennepin County auxiliary, Minneapolis.

Pennsylvania

At the April meeting of the Cambria auxiliary, Mrs. Esther Strong Karakashian, the guest speaker, gave an account of life in Palestine.

At the meeting of the Dauphin auxiliary recently at the Harrisburg Academy of Medicine, Mrs. W. M. Gilbert, the guest speaker, spoke on "Nutrition for Defense." At the annual public relations meeting, April 7, at the academy, health programs for young people was the subject of a forum conducted by local leaders of youth groups. The speakers were Mrs. Henry W. Taylor, executive secretary of the Tuberculosis and Health Society of Harrisburg; Dr. Eleanor R. Stein, on school health programs; Miss Marian McGinsey, physical education instructor at Seiler School; Miss Edith L. Groner, executive secretary of the Y. W. C. A., and Miss Catherine Steltz, director of the Harrisburg Area of Girl Scouts.

At the twelfth annual health institute held at the County Medical Society Building, Philadelphia, about sixty organizations were represented. The speakers and their subjects were as follows: Drs. Louis H. Clerf, "Greeting"; Katharine O. Elsom, "Vitamins in Relation to National Defense"; John H. Gunter, "Nutrition and the Teeth"; Earl D. Bond, "Nutrition and the Emotions"; Mrs. Charles C. Course, "Responsibility of the Doctor's Wife in This Crisis"; Stanley P. Reimann, "Cancer as It Concerns You"; Lieut. Col. Arthur P. Hitchens, "Nutrition, Health and Defense," and Lewis T. Buckman, president of the Medical Society of the State of Pennsylvania, "Organized Efforts in Medical Defense."

The Crawford County auxiliary was addressed recently by Mrs. Amy Driver Heath, nutritionist, in Meadville on "Feeding Efficiency"; Dr. Herman H. Walker, councilor for the eighth district, talked about the blood bank established by the Crawford County Medical Society.

Texas

The twenty-fourth annual session of the Woman's Auxiliary to the State Medical Association of Texas was held in Houston, May 11-14, with a registration of 309. During the entire meeting open house was held in a reception suite at the Lamar Hotel, with members of the Harris County auxiliary as hostesses. Mrs. Frank J. Liams, Houston, was in charge of the reception suite. The entertainment included the reading of the "White Cliffs of Dover" by Mrs. T. E. Kimmerley of Houston.

May 12 a breakfast for council women and district presidents was held at the Rice Hotel. In the afternoon about 300 members and visitors of the auxiliary attended the tea held at the Houston Country Club, honoring Mrs. S. F. Harrington of Dallas, Mrs. P. R. Denman of Houston and Mrs. J. U. Reaves of Mobile, Ala. Mrs. J. H. Wooters was the local chairman of arrangements. A ball honoring Dr. N. D. Buie, Marlin, president of the state medical association, was held in the Grand Ballroom. The Past Presidents Dinner was held in the home of Dr. and Mrs. M. L. Graves; eleven past presidents were present.

May 13 the second general business meeting of the auxiliary was held at the Lamar Hotel, with Mrs. Harrington, president, presiding. Dr. Buie brought greetings. At this time all reports of the council women and county auxiliary presidents were heard. At noon the business session adjourned to the San Jacinto Inn for a "no-host" luncheon, at which Mrs. Ramsay H. Moore installed the new officers. Mrs. Reaves, president of the auxiliary to the Southern Medical Society, gave an inspiring address.

May 14 Mrs. Denman entertained the members of the Executive Board with a breakfast, at which plans for the year were made.

Bexar County auxiliary is sponsoring a party each month for service men. Mrs. John Pridgeon, president, has been appointed chairman of the medical division to canvass the city of San Antonio to obtain medical supplies and equipment for emergency civilian defense. The auxiliary voted to equip ward 5 at the Ellington Field Hospital with books, games and music to make the soldiers' convalescence more pleasant.

Virginia

The Petersburg auxiliary has devoted its efforts for two years to securing funds to meet its pledge of $900 to the new Petersburg Hospital. A check for $350 was forwarded to the hospital in January, making the total $550 which the auxiliary to date has contributed to the new building. For the past several years the linen supply of the Petersburg Hospital has been supplied by a shower sponsored by the auxiliary. A shower was given recently at the Nurses' Home. The estimated value of the linen received was $315.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Personal.—Dr. Seth F. H. Howes, assistant superintendent of the New Hampshire State Hospital at Concord, was appointed superintendent of the Arizona State Hospital, Phoenix, July 11. The position has been open since Dr. Otto L. Bendheim was given a leave of absence to enter military service.——Dr. Grover C. Daniel, manager of the Veterans Administration Facility in Walla Walla, Wash., since 1939, has been named to a similar position at the facility in Whipple to succeed Dr. Walter B. Swackhamer, retired.

Program of Health Education.—The Maricopa County Health Department is cooperating in a program of health education in Phoenix and Maricopa County, which will consist of three projects: a teacher training program in health education to be conducted in cooperation with school authorities in Phoenix and the county and the Arizona State Teachers College at Tempe, an adult health education program for community groups in both urban and rural areas of the county to consist of radio and newspaper publicity, lectures and motion pictures under the supervision of the director of the Maricopa County Health Department and an educational program for food handlers to be conducted in cooperation with the division of sanitary engineering of the state department of health to be one of a series of such programs planned for each area of the state.

CONNECTICUT

Dr. Kuh Goes to California.—Dr. Clifford Kuh, New Haven, for a number of years chairman of the committee on industrial health of the Connecticut State Medical Society, has resigned to become director of the bureau of industrial health for the California State Department of Health.

Annual Clinical Congress.—The Connecticut State Medical Society will hold its clinical congress at the Sterling Law Buildings, Yale University, New Haven, September 29-October 1. The program includes the following speakers:

Dr. William W. Herrick, New York, Medical Aspects of Obstetrics.
Dr. William E. Studdiford Jr., New York, Clinical Significance of Bleeding During First Half of Pregnancy.
Dr. Benjamin P. Watson, New York, Clinical Significance of Bleeding During Second Half of Pregnancy.
Dr. George G. Ward, New York, The Intelligent Gynecological Examination.
Dr. Mortimer D. Speiser, New York, Lesions of the Female External Genital Tract Susceptible to Office Treatment.
Dr. Ephraim Shorr, New York, Clinical Experiences with Synthetic Estrogens.
Dr. Julian B. Herrmann, New York, Aspiration Biopsy, a Technic for Cancer Diagnosis.
Dr. Philip Levine, Newark, N. J., The Rh Factor in Erythroblastosis.
Dr. Louis K. Diamond, Boston, Anemias of Childhood and Their Therapy.
Dr. James M. Cunningham, Hartford, The Antisocial Child.
Dr. Robert Elman, St. Louis, Recent Advances in Surgery from the Standpoint of Improving Prognosis.
Dr. Reginald H. Smithwick, Boston, Differential Diagnosis and Treatment of Peripheral Vascular Disease of the Extremities.
Dr. Philip D. Wilson, New York, War Injuries and Their Treatment.
Dr. Frank R. Ober, Boston, Poliomyelitis and the Kenny Treatment.
Dr. John R. Cobb, New York, Treatment of Scoliosis.
Dr. Dudley J. Morton, New York, Foot Disabilities.
Dr. William T. Green, Boston, Pediatric Orthopedic Problems.
Dr. John M. Kenney, New York, Use of Radioactive Phosphorus in Malignant Diseases.
Dr. Charles B. Huggins, Chicago, Castration in Prostatic Neoplasms.
Dr. Joseph Weiner, New Haven, Treatment of Acute Attack of Asthma.
Dr. Harry Eagle, Baltimore, U. S. Public Health Service, The Intensive Treatment of Early Syphilis in Two or Three Months by Triweekly Injections of Mapharsen.
Dr. Robert Gordon Douglas, New York, Chemotherapy of the Urinary Tract.
Dr. Lester M. Morrison, Philadelphia, Chemotherapy of the Gastrointestinal Tract.
Dr. Maxwell Finland, Boston, Chemotherapy in the Bacteremias.
Dr. Champ Lyons, Boston, Chemotherapy in Otolaryngology.
Dr. Phillips Thygeson, New York, Chemotherapy in Disease of the Eye.
Dr. Bertram Shaffer, Philadelphia, Chemotherapy in Dermatology.
Dr. Henry E. Meleney, New York, Modern Treatment of Malaria.
Dr. Francis G. Blake, New Haven, Use of Penicillin.

Capt. James E. Crane, M. C., U. S. Army, formerly of Stanford, will address the luncheon Tuesday on "Experiences of a Flight Surgeon in the South Pacific." There will be a question and answer session conducted on Wednesday by Dr. Clay Ray Murray, New York, and one on Thursday conducted by Drs. Finland, Lyons, Douglas, Morrison and Blake.

DISTRICT OF COLUMBIA

Stockingless Women Prohibited from Trying on New Shoes.—Dr. George C. Ruhland, health officer of the district, recently issued a letter to local shoe dealers requesting their cooperation in preventing stockingless women from trying on shoes in order to discourage spread of "athlete's foot," it is reported.

Course in Tropical Medicine.—Ernest Carroll Faust, Ph.D., head of the division of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans, recently conducted a short course in tropical medicine at the U. S. Army Medical School. Dr. Faust has been consultant in tropical medicine at the army medical school since 1941.

Hospital Asks Patients to Forego Luxury.—A pamphlet issued by Doctors Hospital contains an appeal to patients not to expect luxuries which they received in the hospital before the war. The brochure points out that hospitals are not an exception to the drain on manpower imposed by the war and recommends, among other things, the discontinuance of morning visiting hours and "alcohol rubs to convalescing patients who are not confined to bed."

Annual Scientific Assembly.—The Medical Society of the District of Columbia will hold its fourteenth annual scientific assembly at the Mayflower Hotel, September 29-October 1. The theme of the meeting this year will be "Medical Problems of the War Era" with sessions being divided into discussions on "Diagnosis and Treatment of Infectious Diseases" and "Treatment of War Injuries." Included among the speakers will be:

Dr. Joseph Stokes Jr., Philadelphia, Epidemic Influenza.
Dr. Colin M. MacLeod, New York, Present Status of the Pneumonia Problem.
Dr. John H. Dingle, Boston, Certain Aspects of the Treatment of Meningitis.
Lieut. Comdr. LeRoy D. Fothergill, M. C., U. S. Navy Reserve, Scarlet Fever: The Unitarian Concept of Streptococcic Disease.
Dr. Richard P. Strong, Boston, Acute Diarrheal Diseases Other Than Amebic Dysentery.
Dr. Warfield M. Firor, Baltimore, Intestinal Antisepsis with Special Reference to Succinylsulfathiazole.
Admiral Sir Andrew B. Cunningham, head of the British Admiralty Delegation in Washington, War Conditions in the Royal Navy.
Commander James R. Fulton, M. C., U. S. Navy, Bethesda, Md., Sulfonamides in the Emergency Treatment of Wounds.
Colonel Frank S. Gillespie, British Army Medical Service, British Medical and Surgical Experiences in the Middle East.

There will be a panel discussion on the sulfonamides Wednesday afternoon by Drs. Harrison F. Flippin (Philadelphia), Harry F. Dowling, Sanford M. Rosenthal, James Ross Veal and William Calhoun Stirling.

ILLINOIS

Division of Child Welfare Reorganized.—A new administrative setup has been announced for the state division of child welfare under a program of reorganization which is under way. The change includes the creation of five regional offices to direct and supervise all division services under a regional supervisor. The regional supervisors will be responsible administratively and functionally to the supervisor of case work services, who will direct and supervise all field operations. Additional changes have been made in the management of foster home placement. The new responsibilities which have been added to the division of child welfare over a period of years have greatly increased the load on the central office, and the reorganization was planned to relieve the burden there.

Personal.—Dr. E. Mann Hartlett of Glenview, state medical officer of the Selective Service System in Illinois, has been promoted from major to lieutenant colonel in the Army of the United States, Col. Paul G. Armstrong, State Selective Service Director, announced on August 9. Colonel Hartlett served in the first world war in France and then entered medical school, graduating from Northwestern Medical School in 1924. He practiced medicine for many years in Evanston before reentering active military service.——Dr. Allan J. McLaughlin, medical director, U. S. Public Health Service, Washington, D. C., has been appointed medical administrative consultant to the Illinois State Department of Health.——Dr. William E. Kendall, chief medical officer at the Veterans Administration Facility, Bay Pines, Fla., has been appointed manager of the facility at Dwight, succeeding Dr. Rhodric W. Browne, retired.

Chicago

Eye and Ear Infirmary to Be Affiliated with State University.—The Illinois Eye and Ear Infirmary, a state institution under the jurisdiction of the state department of welfare, has been transferred to the University of Illinois College of Medicine, newspapers recently reported. The transfer

was considered a step in the governor's program of improvement of public welfare service and was done to give the infirmary a larger and more comprehensive medical staff, to expand clinical work and to provide more training facilities for students and physicians. Dr. Harry S. Gradle is medical director and Dr. John B. Cipriani is managing officer of the infirmary. The infirmary was founded in 1869 by Dr. Christian Holmes, then a pioneer eye specialist in the Middle West, and turned over to the state two years later. It now has a capacity of 220 beds and last year accommodated 112,000 outpatients. During the last few years the infirmary has maintained a special glaucoma service with the aid of a grant from the Otho S. Sprague Foundation, by which glaucoma patients are encouraged through the efforts of a medical social worker and a special staff of physicians to continue treatments. The infirmary also cooperated in the establishment of trachoma clinics in southern Illinois, where patients from nineteen counties have received treatment.

INDIANA

Thirty Years as Head of Health Board.—Dr. Herman G. Morgan was guest of honor at a dinner, August 12, which marked his thirtieth anniversary as administrative head of the Indianapolis Board of Health. He was presented with a desk set in honor of the occasion. Dr. Morgan, who is a native of Indiana, graduated at the Indiana University School of Medicine, Indianapolis, in 1909.

Society News.—Dr. Kenneth G. Kohlstaedt, Indianapolis, spoke before the Gibson County Medical Society in Princeton recently on "New Developments in the Treatment of Hypertension." —— The Parke-Vermillion County Medical Society meeting in Clinton was addressed by Dr. Hugh L. C. Wilkerson, Indianapolis, on "Care and Management of Venereal Diseases."——Drs. Arvin Henderson, Ridgeville, and Ivan E. Brenner, Winchester, spoke on "Atelectasis" before the Randolph County Medical Society meeting in Winchester recently.

KANSAS

Annual Registration Due Between July 1 and October 1.—Physicians licensed to practice medicine in Kansas are required to renew their licenses annually between July 1 and October 1 and to pay a fee of $1 to the secretary of the board of medical registration and examination. The secretary must strike from the register of licensed physicians the names of all physicians who fail to pay their annual registration fees as required by law. Physicians whose names are so removed may be reinstated by paying the secretary $5 and submitting to him satisfactory proof of moral fitness.

Division of Industrial Hygiene Created.—The Kansas State Board of Health announced on August 24 the creation of a new division of industrial hygiene to provide consultant service for industries of the state. The Kansas Industrial Hygiene Service has, since its inception five years ago, been a part of the sanitary engineering section of the state board of health at Lawrence. Quarters for the new unit will be provided for all technical and clerical personnel of the division at Topeka in order that they may work closely with the directors of the divisions of local health service, venereal disease control and tuberculosis control. Dr. Robert M. Heilman, Lyons, Neb., U. S. Public Health Service, who graduated at the University of Nebraska College of Medicine, Omaha, in 1938, has been appointed head of the new division.

KENTUCKY

Changes in Health Personnel.—Dr. Jacob Leland Tanner, Henderson, has been appointed health officer of Washington County.——Dr. William R. Kelsay, Monticello, has been named health officer for Clinton and Cumberland counties in addition to Wayne county. He succeeds Dr. Paul D. Moore, Albany, who has been transferred to Casey County. Dr. Moore succeeds Dr. James T. Duncan, formerly of Columbia, who has gone to Charleston, W. Va.——Dr. Donald B. Thurber, Carlisle, has been appointed director of the Tri County Health District consisting of Trimble, Carroll and Gallatin counties.

MARYLAND

Personal.—Dr. Louis B. Flexner, member of the department of anatomy, Johns Hopkins University School of Medicine, Baltimore, has been given a leave of absence to serve as aide to the committee on aviation medicine of the National Research Council. —— The Catholic University of Chile has conferred the degree of doctor honoris causa on Dr. George W. Corner, Baltimore, director of the department of embryology of the Carnegie Institution of Washington.——Dr. Lay Martin, associate in medicine, Johns Hopkins University School of Medicine, Baltimore, is making a trip through Central and South American countries under an appointment by Nelson A. Rockefeller, coordinator of inter-American affairs.

Commander White Receives Navy Cross.—Comdr. Arthur J. White, one of the senior medical officers of the aircraft carrier *Lexington*, received the Navy Cross, September 9, during ceremonies at the Naval Academy, Annapolis. Commander White was cited for his refusal to abandon ship although he had both his ankles and a shoulder fractured and numerous wounds. He was first wounded when a blast all but destroyed the dressing station he directed. Hobbling about on broken limbs, Dr. White transferred all his patients to another improvised station then had to abandon these quarters when the second blast came. According to the New York *Times*, only after his last patient was removed did he consent to be lowered to the rescue ship. The medal was presented by Rear Admiral John R. Beardall, superintendent of the Naval Academy, acting for Secretary Knox on behalf of President Roosevelt. Commander White, who is now stationed at the Naval Hospital, Annapolis, graduated at Western Reserve University School of Medicine, Cleveland, in 1917.

MASSACHUSETTS

Industrial Accident Advisory Committee. — A medical advisory committee has been appointed to the state industrial accident board, consisting of Drs. Cadis Phipps, William E. Browne, Donald Munro, William A. Rogers, John G. Downing, Arial W. George and Timothy Leary, all of Boston.

Dr. Christian to Return to Teaching.—Dr. Henry A. Christian, Brookline, Hersey professor of the theory and practice of physic, emeritus, has been invited by the president and fellows of Harvard to return to active duty to give clinical instruction. He has also been appointed visiting physician at the Beth Israel Hospital in Boston. Dr. Christian became professor emeritus in 1939.

MICHIGAN

Advisory Committee to Crippled Children Commission. —A technical advisory committee to the Michigan Crippled Children Commission has been appointed. The members are Drs. William P. Woodworth, Detroit; Frank Van Schoick, Jackson; Charles W. Peabody, Detroit; Alfred L. Arnold Jr., Owosso; Harold A. Miller, Lansing; Frederick A. Coller, Ann Arbor, and Ivor E. Reed, Detroit.

Crime Detection Laboratory Ends First Year. — The crime detection laboratory, Lansing, operated by the state department of health and the state police, investigated more than 200 cases during its first year. Clarence W. Muehlberger, Ph.D., is in charge of the laboratory, the maintenance of which is on an experimental basis during the first two years with the expenses taken out of the budgets of the state department of health. The legislative act which established the laboratory did not include an appropriation for its organization or operation because there was no acceptable method of arriving at cost figures until the work was actually under way.

MINNESOTA

Student Tuberculosis Survey.—A total of 2,703 students were given roentgenograms in a survey recently completed by the Hennepin County Tuberculosis Association, the Hennepin County Medical Society, the department of hygiene and health education of the Minneapolis Public Schools, the Minneapolis Division of Public Health and the Minneapolis Parent-Teacher Council. The tuberculin skin test and 35 mm. x-ray examinations were offered to 3,363 graduating seniors in the public and parochial high schools of the city. A total of 2,881 students, or 85 per cent of the enrolment, brought in cards signed by their parents requesting the skin test, x-ray or both. The parents of 2,272 students in this group of students indicated that they had a family physician. Of 2,642 given tuberculin tests 811 students, or 31 per cent, reacted positively. Of 2,703 given x-ray examinations 2,217 had class A (negative) results, 386 had class B (positive) results and 100 had class C (positive) results. The parents of the 100 students in class C were advised in writing to take their children to their family physician immediately for a chest roentgenogram. The parents of the 386 in class B were advised to take their children to the family physician within a year for an examination including a roentgenogram of the chest. The parents of the 526 students who had positive tuberculin tests but class A (normal) roentgenograms or no roentgenograms were advised to take their children to the family physician every year for an examination including a chest roentgenogram or a tuberculin test. Accord-

ing to the Bulletin of the Hennepin County Medical Society, the Minneapolis Division of Public Health is getting in touch with family physicians of students in group C to secure the final diagnoses.

NEBRASKA

Annual Registration Due on or Before October 1.—Physicians licensed to practice medicine in Nebraska are required by law to register with the Department of Public Welfare annually, on or before October 1, and to pay a fee of $1. A license expires if the licentiate fails to register, but within the thirty days next following its expiration it may be revived by the payment of the registration fee and a penalty of $1. If that is not done, an order of revocation is issued and thereafter the revoked license can be reinstated only on the recommendation of the board of examiners in medicine and on the payment of the renewal fees and penalty then due.

NEVADA

State Medical Meeting.—The Nevada State Medical Association will hold its annual meeting at Reno September 24-26 under the presidency of Dr. George R. Magee, Yerington. The program includes the following speakers:

Dr. Thomas E. Morgan, Las Vegas, Specific Needs in the Public Health Field in the State of Nevada.
Major Francis B. Zener, M. C., U. S. Army, Vancouver, Wash., The Physician and National Defense.
Dr. Robert A. Peers, Colfax, Calif., Control of Tuberculosis in the Individual Patient and Among His Contacts.
Dr. Miley B. Wesson, San Francisco, Peyronie's Disease, Etiology and Treatment.
Dr. George W. Pierce, San Francisco, Plastic Surgery in the Region of the Eye and Orbit.
Dr. George Joyce Hall, Sacramento, Calif., Endocrine Treatment of Menstrual and Menopause Disturbances.
Dr. Warren B. Allen, Oakland, Calif., Acute Craniocerebral Injuries.
Dr. Bean M. Palmer, Oakland, Improved Anesthesia and Position for Perineal Prostatectomy.
Major Louis C. Bennett, M. C., U. S. Army, Los Angeles, Diagnosis and Management of Obstruction of the Small Intestine.
Dr. James B. Herring, Reno, Vasectomy: Its Place in Future Medicine; A Modern Operative Technic.
Dr. Norman E. Applewhite, Reno, Sphenoiditis: Its Diagnosis and Treatment.

NEW JERSEY

Infantile Paralysis Quarantine.—One block of Harper Avenue between Bull Terrace and Stuyvesant Avenue in Irvington was quarantined against infantile paralysis, September 4, after 2 cases of the disease had developed and the third was suspected, according to the New York *Times*. Health inspectors were guarding the area and no children under 17 were permitted to enter or leave the block. Adults were allowed to come and go. The *Times* reported that the health department was taking action against a stable owner in the block, as the stable was alleged to be a breeding place of flies. Householders were also being prohibited from leaving garbage in open receptacles. The 3 children involved were taken to the Essex County Hospital for Contagious Diseases, Belleville.

Museum to Exhibit Display on Nutrition.—The Newark Museum will hold an exhibition on nutrition from October 1 to December 31, including a graphic treatment of community problems, the national yardstick of nutrition and consumer interests. The exhibit will use charts, photographs and large wooden cutouts, a summary of such programs as school lunches, surplus marketing plans, Red Cross and board of health work, consumer groups and nutrition councils. The national yardstick of nutrition will be demonstrated by life size figures representing a typical family of five accompanied by charts to indicate the weekly amounts of food necessary to keep up nutrition requirements. One feature will be a display of changing menus, posted in the exhibit each week, offering a nutritive diet for liberal, moderate and thrifty budgets, supplied by the New Jersey Department of Agriculture.

NEW YORK

Industrial Health Teaching Day.—The Medical Society of the State of New York announces "Industrial Health Teaching Day" at Syracuse University College of Medicine, Syracuse, September 26, under the auspices of local and state agencies. The program will include the following speakers:

Frieda S. Miller, Albany, Maintaining the Health of the Worker in the War Effort.
Dr. Leon H. Griggs, Syracuse, Industrial Dermatoses.
Dr. Forrest O. J. Young, Rochester, The Care of Soft Tissue Injuries.
Dr. Donovan J. McCune, New York, Food Requirements for Health.
Dr. James H. Sterner, Rochester, Toxic Effects of Some Newer Industrial Materials.

Refresher Courses on Venereal Diseases.—A weekly series of clinical and refresher courses on syphilis and other venereal diseases will open on September 23 in the Central Social Hygiene Center, 125 Worth Street, Manhattan, and will be continued each Wednesday morning until the series is ended. It is a continuance of the program of the bureau of social hygiene intended to keep the physicians in practice abreast of approved diagnosis of syphilis, gonorrhea and other venereal diseases. Individual topics will include the treatment of early syphilis, late syphilis, syphilis in pregnancy, congenital syphilis, chemotherapy of gonorrhea, venereal disease and the war.

New York City

Meetings on Historical and Cultural Medicine.—"Public Health in New York City: Retrospect and Prospect" will be the theme of the first meeting of the fall and winter series of the section on historical and cultural medicine of the New York Academy of Medicine, November 4. The meeting will be sponsored jointly by the historical section and the committee on public health relations. Topics to be discussed include "The Story of the Public and Voluntary Health Agencies" and "Glimpses Into the Future." The following program has been announced for meetings of the historical section, which are held bimonthly: Drs. Henry E. Sigerist and Arturo Castiglioni, Baltimore, who will speak on "Vesalius," January 13, and Dr. Edward Rosen, Revere, Mass., "Copernicus," March 10.

OHIO

Annual Forum on Allergy.—The fifth Annual Forum on Allergy will be held at the Hotel Statler, Cleveland, January 9-10. Information may be obtained from Dr. Jonathan Forman, 956 Bryden Road, Columbus.

Museum Receives Grant for Nutrition Exhibit.—The Cleveland Health Museum has received a grant of $1,100 from the Thomas H. White Trust Fund to establish a permanent exhibit on nutrition and health at the museum. The exhibit is expected to open early in January.

Personal.—Dr. Thomas F. Ross, Columbus, has been appointed medical director of the Ohio State Life Insurance Company.——More than one hundred and seventy-five friends and colleagues recently gathered to honor Dr. Henry J. Pelley, Hanoverton, on the fiftieth anniversary of his graduation from medical school.——Dr. Robert H. Hoecker has resigned as health commissioner of Mount Vernon to enter army service.——Dr. Frank M. Hartsook, Cardington, has been named health commissioner of Morrow County.

OKLAHOMA

Executive Secretary Graham Goes to Procurement and Assignment Service.—Robert H. Graham, Oklahoma City, executive secretary of the Oklahoma State Medical Association, has been granted a leave of absence to serve as executive assistant to Lieut. Comdr. Maxwell E. Lapham of the Procurement and Assignment Service. Miss Ann Betche, assistant secretary, will carry on the work of the executive office.

University News.—Dr. Willis Kelly West, associate professor of orthopedic surgery, University of Oklahoma School of Medicine, Oklahoma City, has been appointed acting chairman of the department of orthopedic surgery and acting chief of the orthopedic service in the University and Crippled Children's Hospitals. Dr. Paul C. Colonna, who was in charge of these units, resigned to become professor of orthopedic surgery at the University of Pennsylvania School of Medicine, Philadelphia.

PENNSYLVANIA

Scranton Mothers in War Industries.—Lanham funds for war nurseries and child care projects made available early this year are making possible a program of before and after school care, noon lunch and vacation care for 100 children in the first to seventh grades of Scranton schools, newspapers reported September 1. The Scranton project was applied for after a survey revealed that, of 375 mothers in the Scranton school district, 170 are employed, leaving their children without proper care except during the regular school hours. The mothers are working in companies handling war orders. Care for the school age children will be available five days a week. In winter the program will be operated in the schools from 6:45 to 8:30 a. m. and from 3 to 5:30 p. m. and will provide a noon lunch for the children of war workers. During the summer, when the city's normal recreation program extends to 4 p. m., the program will operate from 4 to 9 p. m. and lunch will be served at noon.

Health Institute.—The Third Pennsylvania Health Institute will be held at the Penn-Harris Hotel, Harrisburg, September 28-30, under the auspices of the division of health education of the state department of health and a group of

national and local agencies. Included among the speakers will be representatives from the army, navy and public health service. Other speakers will include:

Sister Elizabeth Kenny, Minneapolis, Infantile Paralysis—The Crippler.
Dr. Charles Howard Marcy, Pittsburgh, Tuberculosis and the Home Front.
David J. McDonald, Pittsburgh, Labor's Stake in the Control of Health Hazards.
Dr. Joseph Shilen, Pittsburgh, Influence of Occupation on Tuberculosis.
Col. John J. Moorhead, M. C., U. S. Army, New York, Surgical Service at the Pearl Harbor Attack.
John W. German Jr., Harrisburg, The Importance of Medical Examination in the Schools.
Dr. Herbert T. Kelly, Philadelphia, Nutrition and the War Effort.
Dr. William H. Brennen, Meadville, Community Health Hazards Accompanying the War Effort.

RHODE ISLAND

The Charles V. Chapin Annual Oration. — The Rhode Island Medical Society has established the annual Charles Value Chapin Oration in honor of the late Dr. Chapin, who throughout his entire career was active in the field of public health in Rhode Island and Massachusetts. Dr. Timothy Leary, professor of pathology emeritus, Tufts College Medical School, Boston, recently gave the first lecture on "Atherosclerosis—Its Causes." Dr. Chapin, who died in 1941, had been superintendent of health of Providence from 1884 to 1932 and lecturer at Harvard School of Hygiene and Public Health from 1923 to 1935. In 1914 he carried on a survey of state sanitation throughout the United States for the American Medical Association. In 1927 he was president of the American Public Health Association.

VERMONT

New Professor of Pharmacology and Physiology.—Dr. Donald H. Slaughter, formerly associate professor of pharmacology at Baylor University College of Medicine, Dallas, has been appointed professor of pharmacology and physiology and chairman of the department of the University of Vermont College of Medicine, Burlington.

Director of Maternal and Child Hygiene Appointed.—Dr. Viola Russell, director of maternal and child hygiene of the North Dakota State Department of Health, Bismarck, has been appointed to a similar position for the Vermont Department of Public Health in Burlington. She had held the North Dakota position since Jan. 1, 1940.

WASHINGTON

Personal. — Dr. Robert W. Ripley, New York, recently arrived in Pasco to serve as assistant district health officer for Benton and Franklin counties and the western top of Walla Walla County.——Dr. Eugene L. Kidd, Centralia, health officer of Lewis County, has been placed in charge of the unit in Snohomish County with headquarters in Everett.

GENERAL

Clinical and Climatological Association Postpones Meeting.—The American Clinical and Climatological Association announces the postponement of its annual session, which was scheduled for Princeton, N. J., October 12. Dr. Francis M. Rackemann, 263 Beacon Street, Boston, is the secretary.

Statistical Information on Diabetes. — The American Diabetes Association has appointed a committee on statistical information to set up procedures for the collection of data for future analysis. The action was taken at the recent annual meeting of the association with a view toward developing a plan for the future welfare of the diabetic in the general public health program.

Hard of Hearing Week.—The American Society for the Hard of Hearing, Washington, D. C., will sponsor the observance of National Hearing Week, October 25-31, to acquaint the public with the causes of deafness and the need for guarding against them. One hundred and sixty local societies for the hard of hearing in the United States and Canada will participate. "Keep 'Em Hearing" is the theme of the observance this year.

National Safety Congress.—"Save Manpower for Warpower" will be the theme of the thirty-first National Safety Congress and Exposition, to be held in Chicago October 27-29. The entire program, covering every phase of safety with one hundred and seventy-five sessions and five hundred program participants, will be centered on the problem of stopping accidents that delay victory by slowing production, impeding the movement of troops and supplies and wasting manpower, material and time.

Public Health Officers.—Dr. Karl F. Meyer, San Francisco, was chosen president-elect of the Western Branch of the American Public Health Association in Seattle recently, and Dr. Donald G. Evans, Seattle, was installed as president. Vice presidents are Dr. Adolph Weinzirl, Portland, Ore.; Benjamin V. Howe, Denver, and Dr. Claude E. Dolman, Vancouver, British Columbia. William Ford Higby, San Francisco, is the secretary and Guy S. Millberry, D.D.S., Los Gatos, Calif., treasurer.

Society News.—Officers of the Medical Library Association chosen at its recent annual meeting in New Orleans are Mary Louise Marshall, New Orleans, president; Dr. John F. Fulton, New Haven, vice president; Frida Pliefke, Rochester, Minn., secretary, and Bertha B. Hallam, Portland, Ore., treasurer.——The annual meeting of the National Association of Coroners will be held in conjunction with the session of the Pennsylvania State Association of Coroners in the Roosevelt Hotel, Pittsburgh, November 16-18, under the presidency of Alexander L. Brodie, Chicago, coroner of Cook County.

Motion Picture on Peptic Ulcer.—The first complete movie film on peptic ulcer in color and with sound track is now available for free showings to groups of physicians. The film is entitled "Peptic Ulcer" and was produced under the direction of the department of gastroenterology of the Lahey Clinic, Boston. Running time of the film is forty-five minutes. There are 1,600 feet of 16 mm. film, which covers the following problems of peptic ulcer: pathogenesis, diagnosis, treatment, pathology, complications, including obstruction, hemorrhage and perforation, gastric ulcer, surgery and jejunal ulcer. Arrangements for a showing of the film may be made by writing to the professional service department of John Wyeth and Brother, Inc., Philadelphia, who will provide projection equipment, screen, film and operator for medical groups without charge.

Medal Awarded to Health Administrator.—Miss Emily P. Bissell, Wilmington, Del., originator of the Christmas Seal sale in the United States, recently was presented with the Trudeau Medal of the National Tuberculosis Association. The medal, established in 1926 in memory of Dr. Edward Livingston Trudeau, is awarded annually to the person who, in the opinion of the award committee of the national association, has made a "meritorious contribution to the cause, treatment or prevention of tuberculosis." Miss Bissell is the first person in administrative work in the tuberculosis field to receive the medal and the second woman to be thus honored. In 1938 Florence B. Seibert, Ph.D., Philadelphia, received it for work on the purification and standardization of tuberculin. Miss Bissell has long been active in developing improved programs for children and in 1904 aided in forming the Delaware chapter of the American Red Cross. In 1907 she took steps to found a tuberculosis seal movement similar to the program in Denmark. A sum of $3,000 was raised in the first sale, part of which went to the purchase of 50 acres of land, on which a sanatorium was built. Miss Bissell was active in the creation of a state tuberculosis commission and became president of the Delaware Anti-Tuberculosis Society, a position she still holds.

CANADA

President of Canadian Medical Association.—Dr. Albert E. Archer, Lamont, Alta., was elected president of the Canadian Medical Association at its annual meeting in Jasper, June 17, succeeding Dr. Gordon S. Fahrni, Winnipeg, Man.

Hospital Observes Tercentenary.—The Hotel-Dieu de St. Joseph, Montreal, Que., celebrated its three hundredth anniversary in June. The Canadian Hospital Association and allied groups joined in holding a special celebration, and greetings were received from the hospital associations of the United States in honor of the event.

LATIN AMERICA

Personal.—Dr. Julio C. Garcia Otero was reelected dean of the Faculty of Medicine of Montevideo, Uruguay, recently. ——Dr. Eduardo Escudero, Santiago, was appointed minister of public health and social welfare of Chile.——Dr. César Gordillo Zuleta, Lima, has been appointed general director of public health of Peru.

FOREIGN

Personal. — Dr. John W. H. Eyre, emeritus professor of bacteriology of the University of London since 1935, has been elected president of the Royal Institute of Public Health and Hygiene to succeed the late Sir Thomas Oliver.

New Medical Journal. — The first copy of the *Amatus Lusitanus,* Lisbon, Portugal, a journal of medicine and surgery, has been received. The first issue, dated December 1941, contains eighty pages of original articles, clinical notes and book

reviews. Dr. Reinaldo dos Santos is editor of the journal, the address of which is Livraria Portugal, Rua do Carno, 7° Lisbon.

British Association Rejects State Medicine.—The British Medical Association on September 9 rejected by a vote of 177 to 20 a proposal to have it endorse the establishment of a full time salaried government medical service, according to the New York *Times*. It was voted 94 to 92 that any postwar service embracing medical centers should be made available everywhere. The *Times* reported that Sir Kaye Le Fleming said "salaried physicians and surgeons would lose their liberty for all time and become servants of the government, which has never shown any great interest in the welfare of the medical profession." He is further reported to have said that "neither the public nor the profession wants such service and the government is not anxious to start it if it can be helped." The association adopted an amendment recommending that a patient should have the right to contract outside the medical center plan and that a doctor could charge fees for attendance on patients not on his list.

CORRECTION

Chief of the Division of Neuropsychiatry.—In the announcement of the assignment of Dr. Roy D. Halloran to the U. S. Army Surgeon General's Office, Washington, D. C., in THE JOURNAL, September 5, page 57, his title should have been correctly stated as follows: Colonel, Medical Corps, Army of the United States, Chief of the Division of Neuropsychiatry, the Surgeon General's Office.

SPECIAL NEWS

(THIS NEWS WAS ASSEMBLED ESPECIALLY FOR USE IN THE JOURNAL)

Health Under Hitler.—According to the *Frankfurter Zeitung* of June 23, Conti made a statement that "reports from numerous observations show that many sick people get extra food rations on doctors' recommendations in order to assist their convalescence or working capacity but do nothing themselves to hasten their convalescence by their way of living. Many people, for instance, do not refrain from smoking, which is bad for some illnesses, some of which are undoubtedly caused and made worse or at least prolonged by smoking. In such cases, to grant special food rations is a waste at the expense of the German people. In view of the food situation, that is not only inequitable but intolerable." Having given a few examples, Conti continues "I therefore request all doctors to devote their greatest attention to this matter. It is part of the doctor's duty to draw the attention of his patients to the interdependence of these things, and it is part of the doctor's right to refuse extra rations for patients if the latter do not assist the doctor's efforts by their way of living. This should be the general rule, but it applies particularly to smoking."

At the station of La Louvière a crowd of 100 people assailed a train loaded with coal, according to *La Legia*, Liége, July 6, and several tons of coal were stolen. Incidents of this kind occur frequently, in spite of the repeated intervention of the gendarmes.

The *Volk en Staat*, Antwerp, of July 13 reports that the fat supply is Belgium's hardest problem: "The attempt to increase the production of oleaginous seeds has failed. Our farmers prefer to cultivate tobacco, sugar and beets, which are more profitable. Why are our farmers not forced to cultivate a minimum of oleaginous seeds, as the Dutch farmers are? The ploughing up of pastureland has been sadly neglected; there too better results could be obtained. Considering the number of cattle we have left, we hardly need so much pastureland."

According to *Svenska Dagbladet*, Stockholm, of July 13 the Norwegian police authorities have started a large scale mustering of bicycles belonging to Norwegian civilians. It is believed that the Germans will requisition thousands of Norwegian bicycles. Recently hundreds of Norwegian motor car workshops were requisitioned by the Germans and forbidden to carry out civilians repairs.

According to *Akropolis*, Athens, of July 9 it is reported that chemists refuse to make up prescriptions for those customers who look poor and likely to be unable to pay the enormous prices for medicines, which have increased by 400 per cent in the last month.

Government Services

Warning About Veterinary Anthelmintics

The Federal Food and Drug Administration has issued a notice to manufacturers of veterinary anthelmintics and users of the preparations that all known effective anthelmintics are more or less toxic to animals. These preparations should not be administered to sick, physically weak or undernourished animals unless on the advice of a veterinarian. The Federal Food, Drug and Cosmetic Act requires that drugs be labeled with adequate directions for use and adequate warnings against misuse. It defines as misbranded drugs which are dangerous to health when used in accordance with the direction provided in the labeling. To avoid conflict with the requirements of the act, these provisions should be given careful consideration.

New Assistant Chief of Economics

Hazel K. Stiebeling, Ph.D., formerly head of the family economics division, U. S. Department of Agriculture, has been appointed assistant chief of the bureau of home economics of the department under Louise Stanley, Ph.D., chief of the bureau. Dr. Stiebeling will have charge of the research work carried on in the field of home economics, which is now integrated with that of other scientific agencies in the department through agricultural research administration. Dr. Stiebeling has been interested primarily in nutrition and perhaps her greatest single contribution has been the application of methods for determining the dietary levels of groups of people.

North Carolina Free of Brucellosis

The U. S. Department of Agriculture announced on July 6 that North Carolina is the first state to be officially designated as a modified accredited Bang's disease free area. This state also was the first in which all counties were declared practically free of bovine tuberculosis in 1928. The last ten counties in North Carolina were among the twenty-eight added to the areas officially designated as modified Bang's disease free areas by the U. S. Bureau of Animal Industry and cooperating state officials, July 1. These counties are in twelve states and contain approximately three hundred and seventeen thousand dairy and breeding cattle 6 months of age and older. With this latest addition the "modified" area includes a total of five hundred and fifty counties in twenty-four states. Bang's disease (brucellosis) eradication work is being conducted on the area plan in about one hundred and sixty additional counties. A county may be officially designated as a modified accredited area when a test for Bang's disease has been applied to all cattle 6 months of age or older, except steers, and the percentage of reactors to the last test does not exceed 1 per cent of the cattle and the infected herds do not exceed 5 per cent of the total number. When a county meets these requirements it may be declared a modified accredited Bang's disease free area for three years.

Tuberculosis Section Created

A tuberculosis control section has been established in the States Relations Division to cooperate with the Division of Industrial Hygiene, National Institute of Health, Bethesda, Md. The new section will assist in carrying out the tuberculosis control program, which includes an examination of U. S. Coast Guard recruits, workers in war industries, persons in war industries communities, and the elaboration, in cooperation with selective service, the navy and state health departments, of a system of reporting cases of young men rejected because of tuberculosis. A consultation service will be available to state health departments in the development of control programs, and 35 mm. photofluorographic x-ray units are being lent to the bureaus of industrial hygiene and the bureaus of tuberculosis control in case finding. The service includes a medical officer trained in interpreting 35 mm. films, a technician and a clerk. According to the *Military Surgeon*, one unit is in operation in North Carolina, another in San Antonio, Texas, and a third at the Curtis Bay Coast Guard Station near Baltimore. The fourth unit will soon be placed in operation at the Coast Guard Station at Sheepshead Bay, Long Island, N. Y. Other units are expected to begin work in Illinois and Kansas within the next few months.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 7, 1942.

New Type of Stretcher for Merchant Ships

The ministry of war transport has issued a description of a new type of stretcher for use in the merchant navy. This follows the decision of the joint advisory committee on the health of the mercantile marine that at least two of these stretchers shall be carried on all foreign going merchant ships. This type of stretcher, which is called "the Neil Robertson," is especially efficient because the patient can be carried in it under difficult conditions without being liable to roll or slip out at whatever angle it is carried. It is a simple apparatus for moving the wounded safely from difficult places where the ordinary stretcher with stiff poles would be useless. The man is enveloped in a protective but flexible case, so that he takes up as little room as possible. He is wrapped up like a mummy, to be hoisted vertically or carried horizontally. The stretcher can be bent slightly in turning sharp corners in narrow passages, as when it is being loaded up the ladderways from stokeholds or engine rooms. The stretcher is made of stout canvas 65 inches long, the whole being stiffened by bamboo slats sewn to the canvas. It has proved of great value not only on board ship but in other places where an injured person has to be extricated from an awkward position.

Precautions Against Gas Attacks on Civilians

Precautions are being taken against an attack on our civilan population with "blister gas" (mustard gas, or lewisite). A leaflet on the subject has been distributed, and persons splashed are entitled to enter any house and demand soap and water to wash off the poison. They are told that there is no need for alarm if they know what to do. The gas mask will protect such vital parts as the eyes and lungs and so should always be kept handy, even when in bed. An anti gas ointment (bleach cream) is prepared by all pharmacists, who are ordered to have a pail of it outside their shops if gas attacks take place. Persons splashed on skin or clothing should take off the splashed garments, apply the anti gas ointment immediately to the affected part, dab it off with a rag (not wipe it off, which might spread the poison), and rub the anti gas ointment into the place. The rag should be burned. If within five minutes' walk of a house one should go there, discard the remaining outer clothing before entering and have a wash down and a change of clothing. If no such place is available one should go to the nearest public gas cleansing center or first aid post with a gas cleansing section. Those who admit splashed persons to their houses are instructed to see that they take off their shoes and outer clothing before entering and that they do not touch anything with hands or clothing before they reach the washing place. If the eyes are splashed they should be thoroughly flushed out with warm water immediately. If the hair is splashed it should be cut off and anti gas ointment rubbed into the scalp. Discarded clothing is to be sent to the local decontaminating center.

The Drying of Plasma and Serum

The trustees of the late Sir Henry Wellcome have placed $100,000 at the disposal of the Medical Research Council for research into methods of drying blood plasma and serum to provide stable products for use in the transfusion of patients suffering from hemorrhage, shock or other conditions. The trustees and the council have agreed that the gift is to be used for the purchase, erection and operation by the council of a plant to test and develop these methods on a large scale. As the need for improvement of such methods is so important just now and the products will be made freely available for the treatment of the sick and wounded, the council has expressed appreciation of this timely and humanitarian action of the trustees.

A Professorship of Social Medicine

The Nuffield Provincial Hospitals Trust (founded by the automobile magnate Lord Nuffield), will devote $50,000 a year for ten years to the creation in Oxford University of a professorship of social medicine and the foundation of an institute in which the professor will work. The purposes of the institute are (1) to investigate the influence of social, genetic, environmental and domestic factors on the influence of disease; (2) to promote measures other than those usually employed in remedial medicine for the protection of the individual and the community against such forces as interfere with the full development of man's mental and physical capacity; (3) if required by the university, to provide for the instruction in social medicine of students and physicians.

The university registrar of Oxford points out that the public is hardly aware of the progress in the last few generations in the prevention of disease. Smallpox has been virtually eliminated from this country by vaccination, typhus by rise in the standard of cleanliness, cholera by purification of the water supply, bubonic plague by the control of ship borne rats, and typhoid by the scientific treatment of sewage. But the fact remains that in the last year before the war 25.6 million working weeks were lost by the insured population. The prevention of disease appeals much less to philanthropists than the cure, which is so much more striking. Hence they have been less ready to give money for prevention. Six years ago Lord Nuffield devoted $10,000,000 to the endowment of medical research at Oxford and later increased this by $3,000,000 for special purposes. With this money a great school of research into the causes and treatment of disease has been set up. One result of the foundation was to concentrate attention on the need for the study of prevention. In this, social medicine is a new field and Lord Nuffield's latest gift specially provides for it.

Smaller Medical Journals

The war has cut off the Scandinavian sources of material for making paper, and the supply of paper for the printing of periodicals and books is controlled by the government. The result is enforced economy in the consumption of paper. The first June issue of the *British Medical Journal* in 1941 contained only thirty-eight reading pages; in the corresponding issue of 1942 the number was reduced to thirty-two because the paper controller continues to cut the supply. Hence the *British Medical Journal* has made a further reduction in the size of the type and reduced the considerable space given to correspondence, and has enjoined conciseness on correspondents.

Britain's Food Problem in the Future

At the annual meeting of the chemical industry Sir John Russell, director of the Rohamstead Experimental Station (agricultural) and of the Imperial Bureau of Soil Science, who was presented with the society's Messel medal, spoke on chemistry and agricultural reconstruction. Some measure of planning must come into our national life after the war, and this was particularly true of agriculture. Our prewar conditions had given us the richest and most varied dietary in Europe—so rich and varied that only 40 per cent was produced here and the remainder imported. Anything like the same standard after the war could be attained only by careful planning at home and well designed arrangements with overseas exporting countries. One advantage would be more effective use of science. The problems of reconstruction included the more efficient use of fertilizers and feedingstuffs, the closer relation of food production on the farm to considerations of national health and

nutrition, including that of animals, and the need for fuller cooperation between agricultural experts and those responsible for working up the produce into its final form.

Perhaps the most difficult problem of the future would be to preserve the freedom of the scientific worker, without which scientific progress was impossible, and at the same time to insure the application of science to the problems of industry and agriculture. The Nazi system had been detrimental to the progress of pure science in Germany, yet it had insured successful applications of science at any rate to activities related to war. We, on the other hand, had been much more successful with pure science. Our problem was to obtain equal success in its application.

Death of the Author of the Index Animalium

Dr. Charles Davies Sherborn, who has been on the staff of the British Museum of Natural History since 1886, when its director was the celebrated Richard Owen, the protagonist of Darwin, has died in his eightieth year. His published works, particularly his great Index Animalium, are a monument to his unique services to the bibliography of zoology and paleontology. In 1888 he published "A Bibliography of the Foraminifers" and in 1896 "An Index of the Genera and Species of the Foraminifera." He collaborated with Sir Arthur Smith Woodward in "A Catalogue of British Fossil Vertebrata." In 1890 he put forward his scheme for an Index Animalium, a gigantic task which was to occupy most of his time for forty-seven years. His object was to provide naturalists with complete lists of all the generic and trivial names of animals since the time of Linnaeus and the date and place of publication of each name. The colossal nature of his task is shown by the fact that the entries ran to more than four hundred thousand, all of which he extracted from the original sources except two thousand from books not available to him.

MEXICO

(From Our Regular Correspondent)

Aug. 10, 1942.

Outbreak of Typhoid in the Federal District

Year by year, typhoid and paratyphoid fevers, which are endemic all over Mexico, show a slight increase during the beginning of the rainy season, but since last year the number of cases registered has been unusually high and the diseases have spread all over the Federal District, particularly in certain quarters of Mexico City. Well water is used in some towns, especially Tacuba and Atzcapotzalco. These quarters are located in the west of Mexico City. Examination of 2,627 samples of water from the public system showed pollution in 12.5 per cent, and 100 per cent of 399 well waters were found heavily polluted. Several samples of lemonade and ice cream from different factories and other refreshments have been found contaminated and their sale has been prohibited. Ice used for various purposes has been found polluted. It is considered by the epidemiologists that the main cause for the outbreak has been the pollution of the water supply system from the careless change of broken pipes either from the sewerage system or from the water supply. In certain zones of the Federal District the "antojitos Mexicanos" (Mexican delicatessen), especially those sold by venders and in open air kitchens, are to be blamed also. The case fatality rate registered has been 14 per cent. Taking into account unnotified, missed and ambulant cases it is estimated that over 2,500 cases have occurred from August 1941 up to July 1942.

The notification of cases of communicable diseases has been enforced and several practitioners have been fined for not reporting the cases under their care. Health authorities have carried on, in addition, propaganda and health education through visiting nurses about measures to control the outbreak; i. e., compulsory laboratory examination of water and refreshments in restaurants, prohibition of selling certain Mexican foods, fight against flies and vermin, and immunization. The number of persons immunized during the present year has been about 250,000. The people have not offered any resistance toward immunization and willingly attend the clinics for the four doses used in Mexico.

The Problem of Leprosy

According to the third quinquennial census 6,190 lepers exist in the republic of Mexico. The principal focuses are located in the Federal District, in the state of Guanajuato in the central plateau, in the states of Jalisco and Sinaloa in the midwestern coast and in the state of Yucatán in the southeast. During the taking of the census, 338 new lepers were discovered. Only 221 lepers are isolated in the Lepers' Home "Dr. Pedro López" in Zoquiapam, in the outskirts of the Federal District. Another leprosarium is being built in Sarabia, state of Guanajuato, on which about half a million Mexican pesos have already been spent.

During the survey 1,326 relatives of those lepers were found. In the Bureau of Leprosy 20,551 relatives or persons closely connected with lepers are registered and last year 9,038 individual examinations were carried out among relatives and 117 new lepers were discovered.

In accordance with the records of the Bureau of Leprosy, Division of Epidemiology of the Federal Department of Health, 1,715 lepers were treated with chaulmoogra oil derivatives, "Mercado Mixture" and other medicines. Of those 737 improved and 183 are in worse condition. No improvement whatever was obtained in 632 cases, and from 163 there is no report available.

The Bureau of Leprosy has increased its activities, organizing twenty-one new branches or local leprosy councils in different municipalities, and new clinics have been established. The first Dispensario Antileproso "Dr. Rafael Lucio" was inaugurated in Mexico City in 1930.

Late last year the first Conference on Leprosy held meetings in Guanajuato City and nineteen papers dealing with the problem were presented, most of them on the subject of proper isolation of lepers in "ad hoc" institutions.

During the present year the Federal Department of Health, in cooperation with the Secretariat of Public Assistance, organized a special course on leprosy for the physicians in charge of the different aspects of the fight against it. The lectures were in charge of fourteen of the most prominent leprologists in the country headed by Dr. Jesús González Ureña. In addition, fourteen leprologists from all over the country held a meeting in March at the Federal Department of Health to set the basis for research, prophylaxis and treatment during the coming years. During this meeting the National Society of Leprology was organized.

Protection of Civilians in the National Defense

Authorized by the national congress, President Avila Camacho has issued regulations to protect the civilian population during the present war. Safety measures include detecting airplane services, alarm, camouflage devices, blackout, fire services and air raid and gas shelters. Social assistance regulations deal with all medical and surgical activities in case of an emergency. These activities will be in care of official and private institutions.

The Secretariat of Public Assistance will take care of all evacuees, the building of camps, the organization of emergency hospitals and the distribution of food, medicine and other public assistance services. The Federal Department of Health, in cooperation with the civilian authorities, is in charge of all preventive activities, particularly in case of evacuation of mothers, children and aged persons, sanitation of camps and lodges for evacuees, sanitation of food and water and prevention of communicable diseases.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 8, 1942.

Public Health in Bolivia

Dr. Abelardo Ibáñez, minister of public health in Bolivia, recently presented a report to the national congress in which he indicated the factors which are a menace to public health. The population is very sparse. The rural population in the Chaco region emigrated to the cities after the Chaco war. Previously they had lived in plateaus and mountains where there was no tuberculosis. Now they live in crowded areas near the cities and many of them have tuberculosis. The number of hospitals is insufficient. Malaria is frequent; for instance, in Cochabamba 3 or 4 cases a year were reported, but last winter more than 300 cases were seen. Yellow fever and pestilential diseases appear in sporadic epidemic outbreaks in isolated regions. Several animals in the forests are the agents in transmitting the diseases. Many cases of leprosy are observed in some regions of the country. Goiter is endemic. Intestinal parasitism, especially ancylostomiasis, exists in 98 to 100 per cent of children and adults in the tropical and subtropical regions. The epidemics of exanthematic typhus are grave every year. During the last few years the number of cases of recurrent typhus has increased. Venereal diseases have increased during the last few years. Ninety per cent of the people suffer from hunger and chronic avitaminosis. The government has taken steps to control the unfavorable sanitary conditions. A campaign of preventive and curative medicine all through the country is in progress. Many hospitals are urgently needed. Two central hospital-sanatoriums are to be constructed in La Paz and Cochabamba, according to a decree of the government. There is a department of the state for prevention and control of pestilential diseases and an organization of the state and the Rockefeller mission for prevention and control of yellow fever. The department of viscerotomy against yellow fever and the department against pestilential diseases are well organized and have their own means for transportation. The government made an appropriation of money in the 1942 budget for the construction of a leprosarium in San Silvestre Island, Mamoré River. The systematic delousing of natives is already established. Typhoid has diminished because of the systematic administration of antityphoid vaccine. Few cases of smallpox, if any, are observed. A department for prevention and control of venereal diseases is functioning. The treatment of patients during the contagious period is obligatory. In May 1941 an institution for nutrition was opened to the public. It has four departments, one of which is in charge of the free distribution of milk and lunches to school children. The government is giving constant attention to the various problems of public health.

Gold Salts in Chronic Articular Rheumatism

Gold therapy prevents the development of new articular lesions in chronic deforming arthritis, according to Dr. G. Costa Bertani of Buenos Aires, who reported his observations in 45 cases (*Rev. argent. de reumatol.* **6**:159 [Oct.] 1941) in which the therapies commonly resorted to had previously failed. Gold therapy produced great improvement in 40 cases and moderate improvement in 5 cases. The treatment has specific effects on inflammation but not on the deforming lesions, which should be independently treated especially with physical therapy. The good effects of gold salts on rheumatic deformities rest on the previous elimination of the septic rheumatic foci which produce the articular deformities. Gold therapy should be administered with caution, because patients with rheumatism are hypersensitive to the substance. The treatment is contraindicated when examination of the patient shows blood disease.

PARIS

(From Our Regular Correspondent)

Aug. 7, 1942.

Intramedullary (Sternal) Transfusion

At a recent meeting of the Société de science médicale et biologique de Montpellier, Prof. Gaston Giraud, the new dean of the Faculty of Medicine at Montpellier, discussed a case of hemorrhagic aleukemia treated by means of intramedullary transfusion performed for the first time in France. A woman aged 25, after chrysotherapy, has shown a hemorrhagic syndrome with extreme anemia and medullary aplasia. In spite of repeated blood transfusions, genital hemorrhages have occurred daily and the anemia has been progressive. An intramedullary transfusion of 1 cc. of sternal marrow from the patient's mother was performed. Two hours after transfusion the hemorrhages had nearly ceased. The next day the fever ceased and the number of platelets increased but on the third day the hemorrhages reappeared. Three days after the first transfusion the second was made. Four days after the second transfusion a third was made, after which a progressive improvement occurred. But in this case Giraud emphasizes with Fraser, Bavis, Drummond, Ménétrier, Aubertin and Weill the necessity of prolonged medullary opotherapy in order to obtain a stable blood condition in the treatment of certain cases of isochromatic anemia with leukopenia and neutropenia. Medullary opotherapy has been continued during two months and a half, at the end of which the blood elements have become nearly normal.

At another meeting of the society Professor Janbon, Dr. Chaptal, Mlle. Labraque-Bordenave and Dr. Bosc discussed a case of granulocytopenia occurring after treatment with 26 Gm. of sulfapyridine in five days and after three days 28 Gm. in nine days for relapse of a meningitis with meningococcus A in a severe form with septicemia and generalized purpura. On the sixteenth day of the treatment an alarming granulocytopenia developed. The number of hematids and platelets remained normal; there was no tendency to hemorrhage. From the first twenty-one days the sternal marrow showed only 10 per cent of blood elements of the granulocyte series. The general state got rapidly worse. The fever reached 102.2 F. and there were muscular cramps (without meningitis symptoms). On the twenty-third day an intramedullary transfusion was made: 2 cc. of sternal pulp from a universal donor was injected into the sternal marrow of the patient. A gradual decline of the fever and a general improvement followed. From the twenty-fifth day the sternal marrow appeared to be rich in elements. On the twenty-seventh day eosinophils reappeared in the blood. The polymorphonuclears were between 45 and 55 per cent and numbered 3,500 to 4,300. The intramedullary transfusion was supported by special treatment. Janbon suspected a tissue blockade due to the sulfapyridine and tried to clear this blocking by means of bengal rose. A massive elimination of 5,100 Gm. of sulfapyridine was obtained through the urine in twenty-four hours; the day before, this urine elimination was only 100-200 mg. in twenty-four hours. Janbon believes that the amount of sulfapyridine was thus diminished in the sternal marrow and that conditioned the success of the intramedullary transfusion.

Marriages

RALPH L. DICKER, Jersey City, N. J., to Miss Shirley C. Banks of North Bergen, in New York, March 1.

RICHARD BETRUS ELGOSIN to Miss Betty Rosemary Messer, both of Waterbury, Conn., June 29.

GRAY CARLTON HUGHES, Martinsville, Va., to Miss Meta L. Inman of Kingstree, S. C., June 6.

J. WALLACE FINDLEY, Graham, Mo., to Miss Mary Virginia Covington of St. Louis, June 27.

Deaths

Owing to the accumulation of material of military importance, the publication of obituaries has been somewhat delayed; hence the publication of four pages in this issue.

Henry Rawle Geyelin ✠ New York; University of Pennsylvania School of Medicine, Philadelphia, 1909; instructor of clinical pathology at the Columbia University College of Physicians and Surgeons from 1913 to 1916, associate in clinical pathology, 1916-1917, associate in medicine from 1917 to 1921 and since then assistant clinical professor of medicine; specialist certified by the American Board of Internal Medicine; member of the American Association for the Advancement of Science, the Association of American Physicians, the American Clinical and Climatological Association, the American Society of Clinical Investigation and the Harvey Society; fellow of the American College of Physicians; since 1921 associate attending physician at the Presbyterian Hospital, where he was formerly a Blumenthal fellow in medicine and assistant visiting physician; chief of the medical clinic of the Vanderbilt Clinic, 1918-1919; consulting physician at the Babies Hospital from 1923 to 1928, visiting physician from 1928 to 1932 and since 1933 associate attending physician; consultant specialist in diseases of metabolism at the U. S. Veterans' Hospital number 81 from 1924 to 1933; member of the medical board of the Doctors Hospital since 1929; aged 58; died, September 7.

Thomas Dyer Tuttle, Chula Vista, Calif.; College of Physicians and Surgeons, New York, 1892; member of the House of Delegates of the American Medical Association in 1910 and 1911; for many years secretary and state health officer of the Montana State Board of Health; past president and vice president of the Medical Association of Montana; in 1904 organized the Montana Public Health Association and served as the first secretary; served as director of medical administration of cantonments of Fort Lewis and Bremerton, Wash., with rank of major during World War I; formerly on the staff of the U. S. Veterans Hospital number 65 at St. Paul; was instrumental in the building and was the first superintendent of the Montana State Tuberculosis Sanitarium, Galen; in 1911 was awarded the first Ricketts Memorial Medal by the Medical Association of Montana; wrote the food and drug law which was passed by legislature in 1911; was successful in securing the enactment of the stream pollution and sewage disposal law in 1907 and wrote and secured passage of the general public health law; aged 73; died, June 24, of heart disease.

John Cowell MacEvitt, Brooklyn; College of Physicians and Surgeons, Keokuk, Iowa, 1878; member of the House of Delegates of the American Medical Association in 1911 and from 1913 to 1915; member of the Medical Society of the State of New York; president of the Medical Society of the County of Kings in 1910; past president of the Brooklyn Gynecological and the Brooklyn Pathological societies; fellow of the American College of Surgeons; served as a passed assistant surgeon in the U. S. Navy during the Spanish-American War; was a senior medical officer with rank of lieutenant commander in charge of four naval air stations at Brest, France, during World War I; for many years a member of the medical staff of St. Mary's Hospital, where he was chief of the gynecologic service and president of the medical board; formerly chief gynecologist at the Coney Island Hospital; at one time editor of the *New York State Journal of Medicine;* aged 86; died, July 1, of cerebral arteriosclerosis.

Alfred Merriman Rowley, St. Petersburg, Fla.; University of Vermont College of Medicine, Burlington, 1897; specialist certified by the American Board of Surgery; member and past president of the New England Surgical Society; fellow of the American College of Surgeons; at one time a medical inspector for the board of health of Hartford, Conn.; served as a major with the American Expeditionary Forces during World War I and received a special citation from General Pershing for his service as a member of the Yale mobile hospital unit in France; consulting surgeon at the Hartford (Conn.) Hospital, the Hartford (Conn.) Retreat, the Charlotte Hungerford Memorial Hospital (Torrington, Conn.), the Manchester (Conn.) Memorial Hospital, the Rockville (Conn.) City Hospital, the Bristol (Conn.) Hospital, the New Britain (Conn.) General Hospital and the Veterans Administration Facility, Newington, Conn.; aged 66; died, July 20.

Glenn Irving Jones ✠ Colonel, U. S. Army, retired, Washington, D. C.; George Washington University School of Medicine, Washington, 1905; instructor of anatomy and histology at his alma mater from 1905 to 1909; entered the medical corps of the U. S. Army as a first lieutenant in 1910, became a captain in 1913, a major in 1917 and a lieutenant colonel in 1930; retired with rank of colonel in 1936 for disability in line of duty; was awarded the Distinguished Service Medal for service during World War I; chief surgeon of the Southern Railway; fellow of the American College of Surgeons; aged 58; died, July 18, of heart disease.

William Henry Bickley ✠ Waterloo, Iowa; New York Homeopathic Medical College and Hospital, New York, 1900; past president of the Black Hawk County Medical Society; fellow of the American College of Surgeons; chief surgeon, Waterloo, Cedar Falls and Northern Railway; division surgeon, Illinois Central Railroad; local surgeon for the Chicago Great Western and Chicago, Rock Island and Pacific railroads; on the staffs of the Presbyterian, St. Francis and the Allen Memorial hospitals; aged 65; died, July 3, in Chicago of coronary thrombosis.

George Ketcham Hagaman ✠ St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; in 1937 president of the Ramsey County Medical Society; clinical instructor of pediatrics at his alma mater; specialist certified by the American Board of Pediatrics, Inc., member of the American Academy of Pediatrics; aged 65; on the staffs of the Children's Hospital, the Ancker Hospital, St. Joseph's Hospital, St. Luke's Hospital and the Miller Hospital, where he died, July 11, of Hodgkin's disease.

Josephus J. P. Bowdoin, Atlanta, Ga.; Atlanta Medical College, 1889; member of the Medical Association of Georgia; assistant director of public health, Georgia Department of Public Health, and director of the maternal and child health; served as major in the U. S. Public Health Service during World War I; for many years bank president of Adairsville; fellow of the American College of Physicians; aged 76; died, August 7, of cerebral hemorrhage.

Charles Edwin Iliff ✠ Cincinnati; Miami Medical College, Cincinnati, 1900; past president of the Cincinnati Obstetrical Society; served on the medical examining board of the Selective Service System and in a similar capacity during World War I; medical director of the Western and Southern Life Insurance Company; a member of the visiting staff of the Jewish Hospital and of the consulting staff of the Good Samaritan Hospital; aged 68; died, July 11, of neurosarcoma with metastases.

Julius Henry Gross ✠ St. Louis; Washington University School of Medicine, St. Louis, 1893; assistant professor of ophthalmology at the St. Louis University School of Medicine; at one time instructor of ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; past president of St. Louis Ophthalmic Society; for many years on the staff of St. John's Hospital; aged 70; died, August 17, of carcinoma.

William Herbert Lowry, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1901; professor emeritus of ophthalmology at the University of Toronto Faculty of Medicine; for many years on the staff of the Toronto General Hospital; served overseas with the Canadian Base Hospital number 4 during World War I; formerly vice president of the Canadian Ophthalmological Society; aged 62; died, July 13.

Joseph Funk, St. Petersburg, Fla.; Jefferson Medical College of Philadelphia, 1898; fellow of the American College of Surgeons; for many years a member of the board of health of Elizabeth, N. J., and medical inspector of the city schools; formerly on the staffs of the Alexian Brothers Hospital and the Elizabeth General Hospital and Dispensary, Elizabeth, N. J.; aged 76; died, July 10, of pneumonia.

Harold Robert Leve, Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1918; member of the Medical Society of the State of New York; member of the staff of the Park Avenue Hospital and an associate staff member of the Highland Hospital; vice president of the medical staff of the Jewish Home for the Aged; aged 50; died, July 24, of coronary occlusion.

Philip Michael Schaffner, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1896; on the faculty of the Long Island College Hospital as an instructor in genitourinary diseases and syphilis from 1914 to 1917, lecturer from 1917 to 1923 and associate in genitourinary diseases, 1923-1924; aged 65; died, July 15, in the Meadowbrook Hospital, Hempstead, of heart disease.

Oscar Samuel Armstrong, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1877; member of the Michigan State Medical Society; president of the Wayne County Medical Society, 1892-1893, secretary from 1889 to 1891 and vice president in 1891-1892; aged 90; died, August 12, as the result of injuries received in an automobile accident in January 1941.

Robert Morrison Anderson ✠ Shawnee, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; formerly instructor of anatomy at his alma mater; past president of the Oklahoma State Medical Association and of the Pottawatomie County Medical Society; one of the founders and on the staff of the A. C. H. Hospital; aged 71; died, July 16, of coronary thrombosis.

Homer Waldo Spiers ✠ Los Angeles; Columbia University College of Physicians and Surgeons, New York, 1911; professor of orthopedics at the College of Medical Evangelists; served in the medical corps of the U. S. Army during World War I; on the staff of the Los Angeles County Hospital; member of the American Academy of Orthopedic Surgeons; aged 57; died, July 10.

Horace Taylor Hawkins, Waynesboro, Va.; Medical College of Virginia, Richmond, 1912; member of the Medical Society of Virginia; past president of the Augusta County Medical Society; served as a major in the medical corps of the U. S. Army during World War I; aged 54; died, July 30, in the Waynesboro Community Hospital of lung abscesses.

Myles Aloysius Gibbons, Dunmore, Pa.; Jefferson Medical College of Philadelphia, 1902; member of the Medical Society of the State of Pennsylvania; examining physician on the Lackawanna County Selective Service Board number 6 and served in a similar capacity for the draft board during World War I; aged 65; died, July 20, of coronary thrombosis.

John L. MacDowall ✠ Perth Amboy, N. J.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; for many years assistant surgeon on the staff of the Manhattan Eye and Ear Hospital, New York; ophthalmologist to the Perth Amboy Hospital; retired surgeon in the U. S. Naval Reserve; aged 64; died, July 21, of coronary thrombosis.

Theodore Smith Crosby, Ironwood, Mich.; College of Physicians and Surgeons, Baltimore, 1905; member of the Michigan State Medical Society; past president of the Gogebic County Medical Society; served during World War I; aged 64; died, July 18, in the Veterans Administration Facility, Wood, Wis., of nephrosclerosis with uremia.

Joseph Raymond Perry, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1914; member of the California Medical Association; served as a captain in the medical corps of the U. S. Army during World War I; examiner for a local draft board; on the staff of the Presbyterian Hospital-Olmstead Memorial; aged 52; died, July 7.

John Victor Anderson, Red Wing, Minn.; Rush Medical College, Chicago, 1886; past president and secretary of the Goodhue County Medical Society; formerly served as city health officer, as county physician and as a member of the U. S. Pension Examiners; surgeon for the Chicago Great Western Railway; aged 80; died, July 19.

Ambrose L. Jones, Greenback, Tenn.; University of Louisville (Ky.) Medical Department, 1896; member of the Tennessee State Medical Association; for many years a member and chairman of the Loudon County board of education; aged 73; died, July 4, in the Fort Sanders Hospital, Knoxville, of coronary occlusion.

Robert Madison Graham, Pamplico, S. C.; Medical College of the State of South Carolina, Charleston, 1913; served in the medical corps of the U. S. Army during World War I; aged 55; died, July 20, in the Roper Hospital, Charleston, of tetanus which developed as the result of catching his hand in an electric fan.

William P. Jobse ✠ Milwaukee; Chicago Medical College, 1884; an Affiliate Fellow of the American Medical Association; president of the Medical Society of Milwaukee County in 1906; medical examiner for an induction board during World War I; aged 81; died, July 20, of bronchiectasis and chronic myocarditis.

Benjamin Abner Brown, Indianapolis; Medical College of Indiana, Indianapolis, 1888; member of the Indiana State Medical Association; served in the medical corps of the U. S. Army during World War I; aged 76; died, July 24, in the Methodist Hospital of injuries received when he was struck by a truck.

Clarence Currie Everson, Morden, Man., Canada; Manitoba Medical College, Winnipeg, 1909; past president of the Council of the College of Physicians and Surgeons of Manitoba; aged 57; died, July 10, in the Winnipeg General Hospital of empyema of the gallbladder with perforation and abscess of the liver.

Winn Estille Hord, Maysville, Ky.; Ohio-Miami Medical College of the University of Cincinnati, 1912; at one time member of the board of education; on the staff of the Hayswood Hospital; associate surgeon for the Chesapeake and Ohio Railroad; aged 55; died, July 29, of hypertensive heart disease with nephritis.

Henry Frank Roepke ✠ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1916; served as a captain in the medical corps of the U. S. Army during World War I; aged 52; on the staffs of the Germantown Dispensary and Hospital and the Hahnemann Hospital, where he died, July 29.

John Sutherland Matheson, Brandon, Man., Canada; Trinity Medical College, Toronto, Ont., 1894; L.R.C.S., L.R.C.P., Edinburgh, and L.F.P.S., Glasgow, 1897; fellow of the American College of Surgeons; on the staff of the Brandon General Hospital; aged 70; died, July 27, of cerebral hemorrhage.

Gavin H. Butler, Heavener, Okla.; University of Louisville (Ky.) Medical Department, 1892; past president of the Tulsa County Medical Society; formerly on the staff of the Morningside Hospital, Tulsa; for several years commissioner of LeFlore County; aged 71; was found dead in bed, July 16.

Joseph Rubsam ✠ Logansport, Ind. (licensed in Indiana in 1898); past president of the Cass County Medical Society; one of the first members of the city board of health; aged 75; on the staffs of the Cass County Hospital and St. Joseph's Hospital, where he died, August 7, of gastric carcinoma.

Alden G. Sheets, Eaton Rapids, Mich.; Detroit College of Medicine, 1896; member of the Michigan State Medical Society; formerly mayor of Eaton Rapids; at one time served as city health officer and member of the city council and of the school board; aged 75; died, August 3, of coronary occlusion.

William S. Hector ✠ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; Rush Medical College, Chicago, 1893; at one time clinical professor of surgery at the Loyola University School of Medicine; formerly on the staff of St. Bernard's Hospital; aged 76; died, July 19.

William Grant Shields Jr. ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1900; director of the outpatient department, formerly chief dermatologist and president of the staff of the Germantown Hospital; aged 63; died, July 11, of carcinoma of the colon.

David Trimble Huston, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1896; at one time instructor of genitourinary surgery at the Philadelphia Polyclinic and College for Graduates in Medicine; aged 67; died, July 28, in Cohasset, Mass., of heart disease.

Walter Charles Crouch, Cleveland; Cleveland University of Medicine and Surgery, 1894; served as a captain in the medical corps of the U. S. Army during World War I; aged 69; on the staff of the Grace Hospital, where he died, July 4, of cerebral hemorrhage and cardiovascular disease.

Charles E. Ragan, Terre Haute, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the American Society of Anesthetists, Inc.; formerly on the staff of St. Anthony's Hospital; aged 60; was found dead, July 21, of coronary occlusion.

Eugene De Alton Holly, Candor, N. Y.; Cleveland Medical College, Homeopathic, 1897; formerly served as county coroner, as school physician and as a member of the board of education; aged 68; died, July 24, of coronary thrombosis, chronic nephritis and paralysis agitans.

George Frederick Le Roy Fuller, Cowansville, Que., Canada; McGill University Faculty of Medicine, Montreal, 1899; served overseas during World War I; until recently medical officer in charge of number 7 District Depot at Fredericton, N. B.; aged 67; died, July 26.

Leon Earl King ✠ Hot Springs National Park, Ark.; University of Arkansas School of Medicine, Little Rock, 1931; instructor in medicine at his alma mater; on the staff of the Leo N. Levi Memorial Hospital; aged 34; died, July 10, in St. Joseph's Infirmary, of pneumonia.

William J. Mahoney ✠ Syracuse, N. Y.; Syracuse University College of Medicine, 1912; medical examiner for the draft board and served in a similar capacity during World War I; on the staff of the Crouse-Irving Hospital; aged 59; died, July 8, of coronary thrombosis.

Charles R. Pontius, Fremont, Ohio; Starling Medical College, Columbus, 1884; formerly examining physician for the Ohio Industrial Commission; for many years on the staff of the Memorial Hospital of Sandusky County; aged 81; died, July 15, of chronic myocarditis.

Franklin N. Odbert, Indianola, Ill.; Jefferson Medical College of Philadelphia, 1880; member of the Illinois State Medical Society; for many years a member of the U. S. Pension Examining Board; served on the draft board during World War I; aged 85; died, July 14.

Herbert Claude Andersson, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1897; member of the Missouri State Medical Association; on the staffs of the Trinity Lutheran and St. Mary's hospitals; aged 66; died, July 19, of carcinoma of the throat.

Morton Watson Haws ✠ Fulton, Ky.; University of Louisville School of Medicine, 1926; past president of the Southwestern Kentucky Medical Association; founder of the Haws Clinic; aged 39; died, July 30, in the Baptist Memorial Hospital, Memphis, Tenn.

Peter Selbie Clark ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1899; at one time professor of surgery at his alma mater; fellow of the American College of Surgeons; on the staff of the Chicago Memorial Hospital; aged 67; died, July 30.

Joseph Dana Phillips, South West Harbor, Maine; University of the City of New York Medical Department, New York, 1886; member and past president of the Maine Medical Association; aged 84; died, July 20, in the Mount Desert Island Hospital, Bar Harbor.

Walter Thomas McNaughton ✠ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; served during World War I; medical director of the Old Line Life Insurance Company of America; aged 62; died, July 6, of coronary occlusion.

Chester Arthur Johnson, Valentine, Neb.; University of Nebraska College of Medicine, Omaha, 1921; member of the Nebraska State Medical Association; fellow of the American College of Surgeons; aged 45; died suddenly, July 6, of cerebral hemorrhage.

James Johnson Fleming, Atoka, Tenn.; Memphis (Tenn.) Hospital Medical College, 1909; past president of the Tipton County Medical Society; formerly mayor of Atoka; aged 58; died, July 8, in the Baptist Memorial Hospital, Memphis, of pneumonia.

Elmer Frederick Scheve ✠ Mascoutah, Ill.; Washington University School of Medicine, St. Louis, 1903; served as a first lieutenant in the medical corps of the U. S. Army during World War I; aged 60; died, July 22, in the Barnes Hospital, St. Louis.

Robert Newton Graham, St. Charles, Va.; Chattanooga (Tenn.) Medical College, 1908; member of the Medical Society of Virginia; aged 63; was killed, July 29, when the automobile in which he was driving was struck by a train at Huntington, W. Va.

James William Atkinson ✠ Glen Rock, N. J.; Long Island College Hospital, Brooklyn, 1886; member of the American Laryngological, Rhinological and Otological Society; formerly on the staff of St. Joseph's Hospital, Paterson; aged 81; died, July 26.

Albert Kirby Gifford, Cedar Rapids, Iowa; Western University Faculty of Medicine, London, Ont., Canada, 1907; member of the Iowa State Medical Society; aged 66; died suddenly, July 5, of coronary occlusion at a summer resort at Crosslake, Minn.

Willard Christopherson, Salt Lake City; College of Physicians and Surgeons, Baltimore, 1912; member of the Utah State Medical Association; at one time health officer of Salt Lake City; aged 64; died, July 8, of cerebral hemorrhage

Gordon Russell Fortson ✠ Susanville, Calif.; Stanford University School of Medicine, San Francisco, 1923; president of the Lassen-Plums-Modoc Counties Medical Society; aged 54; died, July 12, in San Francisco of coronary occlusion.

Arthur Eugene Harris, East Lynn, Mass.; Medical School of Maine, Portland, 1895; member of the Massachusetts Medical Society; for many years on the staff of the Lynn (Mass.) Hospital; aged 72; died, July 12, of coronary thrombosis.

Frederick Barnard Adams, Tampa, Fla.; University of the City of New York Medical Department, New York, 1890; member of the Maine Medical Association; aged 78; died recently in St. Joseph's Hospital of bronchopneumonia.

John Ellsworth Stute, Parkers Landing, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; member of the Medical Society of the State of Pennsylvania; at one time member of the school board; aged 80; died, July 9.

Thomas W. Priest, Springfield, Ill.; Northwestern University Medical School, Chicago, 1903; member of the Illinois State Medical Society; at one time city and county physician; aged 62; died, July 29, of carcinoma of the liver.

Albert Ferree Witmer, Baldwin, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; aged 73; died, June 12, in the Meadowbrook Hospital, Hempstead, of chronic nephritis and fracture of the left hip.

Albert Joachim Schmaler, Hillman, Mich.; Michigan College of Medicine and Surgery, Detroit, 1904; served in the medical corps of the U. S. Army during World War I; aged 61; died, July 15, of carcinoma of the liver.

William Nesbitt Campaigne, Troy, N. Y.; Albany Medical College, 1898; member of the Medical Society of the State of New York; formerly city health officer; on the staff of the Samaritan Hospital; aged 72; died, July 6.

William Albert Whitlock Jr. ✠ Laurens, S. C.; Medical College of the State of South Carolina, Charleston, 1923; past president of the Aiken County Medical Society; aged 44; died, July 18, in the Columbia (S. C.) Hospital.

John A. James-James, San Marino, Calif.; Beaumont Hospital Medical College, St. Louis, 1891; fellow of the American College of Surgeons; aged 76; died, June 9, of heart disease, bronchopneumonia and arteriosclerosis.

Knut Waldemar Paulson, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; aged 73; died, July 6, in the Lutheran Deaconess Hospital of cerebral hemorrhage.

Edgar Clay Doyle, Seneca, S. C.; Bellevue Hospital Medical College, New York, 1897; member of the South Carolina Medical Association; aged 68; died, July 3, of angina pectoris.

William Lewis Towns, Columbus, Ohio; Starling Medical College, Columbus, 1896; on the staff of the Mount Carmel Hospital; aged 72; died, June 15, of cerebral hemorrhage.

John Wilson Hunter, McDaniel, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; aged 67; died, June 23, of carcinoma of the bladder and prostate.

William Parker Burnham, San Francisco; University of California Medical Department, San Francisco, 1896; aged 71; died, June 29, of arteriosclerotic cardiovascular disease.

Edwin Francis Jones, Oakland, Calif.; University of Vermont College of Medicine, Burlington, 1911; at one time city physician and bacteriologist; aged 62; died, June 27.

James Henry Shouldice, Los Angeles; Trinity Medical College and the University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1893; aged 70; died in June.

Frederick Charles Shultis ✠ Leominster, Mass.; Dartmouth Medical School, Hanover, N. H., 1897; on the staff of the Leominster Hospital; aged 69; died, June 23.

Stephen Flatt ✠ Independence, Kan.; St. Louis College of Physicians and Surgeons, 1898; on the staff of the Mercy Hospital; aged 70; died, June 2, of angina pectoris.

Ota Samuel Wilfley, Seattle; Barnes Medical College, St. Louis, 1895; associated with the Veterans Administration; aged 69; died, June 16, in the U. S. Marine Hospital.

William Eugene Whittington, Reddies River, N. C. (licensed in North Carolina in 1921); served during World War I; aged 54; died, June 6, of heart disease.

Kossie Long Buckner ✠ Denton, Texas; Memphis (Tenn.) Hospital Medical College, 1903; past president of the Wise County Medical Society; aged 61; died, June 5.

William Seth Yager, Nebraska City, Neb.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1894; served during World War I; aged 74; died recently.

Isaac Adams, Turlock, Calif.; Grand Rapids (Mich.) Medical College, 1899; aged 68; died, June 2, in the Emanuel Hospital of hypertension and cerebral hemorrhage.

Syvert H. Johnson, Bellingham, Wash.; Jefferson Medical College of Philadelphia, 1897; member of the Washington State Medical Association; aged 72; died, June 20.

Francis John Stirn, Milwaukee; Milwaukee Medical College, 1907; member of the State Medical Society of Wisconsin; aged 68; died recently in the Mercy Hospital.

Spencer P. Combs, Cornettsville, Ky.; University of Louisville Medical Department, 1909; member of the Kentucky State Medical Association; aged 61; died, June 3.

Morris Dugan Thayer ✠ Denver; Reliance Medical College, Chicago, 1910; on the staff of the Presbyterian Hospital; aged 59; died, June 15, of coronary disease.

Adelaide Wallerstein McConnell, New York; New York Medical College and Hospital for Women, New York, 1905; aged 73; died, June 12, of angina pectoris.

Sidney Hamilton Streett, Baltimore; Baltimore Medical College, 1908; served in France during World War I; aged 59; died, June 29, of coronary thrombosis.

Wilfrid Laurier McDougald, Westmount, Que., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1907; formerly senator; aged 60; died, June 19.

Frank Ripley Halstead, Corpus Christi, Texas; Drake University College of Medicine, Des Moines, Iowa, 1908; aged 76; died, June 15, of accidental drowning.

Elmer Ellsworth Anderson, Fort Scott, Kan.; Rush Medical College, Chicago, 1884; aged 82; died recently of coronary heart disease and cerebral hemorrhage.

Hugh Allan Stevenson, London, Ont., Canada; Western University Faculty of Medicine, London, 1894; Trinity Medical College, Toronto, 1895; died recently.

William Andrew M. McConkey, Edmonton, Alta., Canada; Manitoba Medical College, Winnipeg, 1906; aged 67; died recently in Coleman of heart disease.

Sherman A. Askew, Peoria, Ill.; National Medical University, Chicago, 1907; aged 67; died, June 28, in St. Francis Hospital of congestive heart disease.

Jesse Clifford Ross, Hawthorne, Calif.; St. Louis College of Physicians and Surgeons, 1910; police surgeon; aged 57; died, June 7, of coronary occlusion.

William M. Wilson, Tullahoma, Tenn.; University of Tennessee Medical Department, Nashville, 1906; aged 69; died, June 10, of an infection of the arm.

Kate Wilde-Glass, Venice, Calif.; University of Southern California College of Medicine, Los Angeles, 1898; aged 74; died, June 22, of arteriosclerosis.

Aaron Gable Miller, Wildwood, N. J.; Jefferson Medical College of Philadelphia, 1894; aged 83; died, June 10, in Sea Isle City of chronic myocarditis.

William Thomas Hudson, Auburn, N. Y.; Albany Medical College, 1899; aged 67; died, June 15, in the Jackson Memorial Hospital, Miami, Fla.

Joseph Henderson Estes, Little Rock, Ark.; Medical Department of Tulane University of Louisiana, New Orleans, 1887; aged 79; died, June 15.

William Irwin, Philadelphia; Jefferson Medical College of Philadelphia, 1897; formerly on the staff of St. Agnes Hospital; aged 86; died, June 7.

Reuben Graham McCall, Sandpoint, Idaho; Hahnemann Medical College and Hospital, Chicago, 1916; aged 50; died recently of heart disease.

Claude Bernard Hicks, Atlanta, Ga.; University of Maryland School of Medicine, Baltimore, 1914; aged 56; died, June 24, of chronic nephritis.

Raymond P. Harben, Dallas, Texas; University of Tennessee Medical Department, Nashville, 1895; aged 82; died, June 28, of myocarditis.

Melvin Leonard Young, Ashland, Wis.; University of the City of New York Medical Department, New York, 1885; aged 83; died, June 27.

Horace Goodyear Baldwin, Tannersville, N. Y.; Long Island College Hospital, Brooklyn, 1905; aged 64; died, June 9, of chronic myocarditis.

Charles A. Service ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1882; aged 82; died, June 22, in the Presbyterian Hospital.

Gustav Adolph Herrmann, Alton, Ill.; St. Louis Medical College, 1886; aged 78; died, June 1, in St. Anthony's Infirmary and Sanitarium.

George H. Marvel, Lincoln, Neb.; Lincoln Medical College of Cotner University, 1905; aged 69; died, June 21, of cerebral hemorrhage.

Sandford Loeb ✠ Portland, Ore.; University of Oregon Medical School, Portland, 1902; aged 67; died, June 9, of cerebral hemorrhage.

Jay C. Booher ✠ Falls Creek, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 75; died, June 26, of coronary thrombosis.

Alfred Alliegro, New York; Fordham University School of Medicine, New York, 1913; aged 52; died, June 18, of coronary thrombosis.

Joseph W. Gregg, Madison, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1893; aged 73; died, June 5, of arteriosclerosis.

Guy D. Doremus, Peoria, Ill.; Curtis Physio-Medical Institute, Marion, Ind., 1894; aged 76; died, June 14, of carcinoma of the pancreas.

George McD. Callaway, San Antonio, Texas; Medical College of Alabama, Mobile, 1889; aged 82; died, July 8, of arteriosclerosis.

Otto Florea Fleener, Hammond, Ind.; Medical College of Indiana, Indianapolis, 1898; aged 64; died, June 28, of carcinoma of the sigmoid.

Mark Amberson Seavey, Sioux City, Iowa; Sioux City College of Medicine, 1908; aged 63; died, June 13, of pulmonary edema.

Samuel Albert Brown, Canby, Ore.; University of Michigan Homeopathic Medical School, Ann Arbor, 1880; aged 90; died, June 26.

Nelson P. Grant, Woodstock, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; aged 69; died recently.

Daniel Patrick Mahoney, St. John, N. B., Canada; College of Physicians and Surgeons, Baltimore, 1905; aged 67; died recently.

William Eldridge Wright, Burlington, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 79; died recently.

Ezra Rockwell Brooks, Atascadero, Calif.; State University of Iowa College of Medicine, Iowa City, 1886; aged 81; died, June 21.

George Henry Whitaker Whiteside, Omaha; Harvard Medical School, Boston, 1882; aged 87; died recently of second degree burns.

James C. R. Gathings, La Feria, Texas; Memphis (Tenn.) Hospital Medical College, 1887; aged 79; died, June 14, in San Antonio.

Simon Ravich, Los Angeles; Medico-Chirurgical College of Philadelphia, 1902; aged 68; died, June 3, of carcinoma of the stomach.

William Henry Billings, Buffalo; University of Buffalo School of Medicine, 1906; aged 62; died, June 17, of pulmonary tuberculosis.

William Wallace Parker ✠ Floris, Iowa; University Medical College of Kansas City, Mo., 1896; aged 69; died, June 27, of nephritis.

Manning W. Manahan, Atlanta, Ga.; Homeopathic Hospital College, Cleveland, 1882; aged 83; died, June 14, of myocarditis.

Robert Otis Williams, Humboldt, Tenn.; Eclectic Medical Institute, Cincinnati, 1900; aged 68; died, June 7, of arteriosclerosis.

John L. M. Halstead, Sarver, Pa.; Kentucky School of Medicine, Louisville, 1898; aged 72; died, July 19, of heart disease.

Roger Walker Gray, Crane, Texas; Baylor University College of Medicine, Dallas, 1921; aged 44; was found dead, July 12.

Edwin Ward Mackey, Tampa, Fla.; Birmingham (Ala.) Medical College, 1909; aged 72; died, July 11, of diabetes mellitus.

John St. Avit ✠ Cape Girardeau, Mo.; St. Louis University School of Medicine, 1908; aged 78; died, June 8, of angina pectoris.

Alfred Deyo, Derby, Ohio; Ohio Medical University, Columbus, 1893; aged 76; died, June 29, of cerebral hemorrhage.

Abram Lincoln Weil ✠ Buffalo; University of Buffalo School of Medicine, 1898; aged 66; died, July 5, of nephritis.

George C. Fisher, Indianapolis; Kentucky School of Medicine, Louisville, 1883; aged 85; died, June 5, of arteriosclerosis.

Joseph Miller, Butler, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1894; aged 82; died, June 1, of senility.

William T. Steger, St. Louis; Missouri Medical College, St. Louis, 1891; aged 73; died, June 7, of heart disease.

Thomas A. Langford, Hilham, Tenn. (licensed in Tennessee in 1889); aged 87; died, June 28.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

The following items are abstracts of stipulations in which promoters of "patent medicines" or medical devices have cooperated with the Federal Trade Commission to the extent of agreeing to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Arsenic Spring Water.—That this constitutes a remedy or cure for diabetes, high blood pressure, constipation, rheumatism, malaria or liver, stomach, bladder or kidney disorders or is a tonic or an alterative or has no equal as a diuretic were unwarranted advertising claims which Robert Enrico, trading as Arsenic Spring Water Company, Hot Springs, Ark., agreed to discontinue in his advertising, according to a stipulation that he made with the Federal Trade Commission in January 1942. Enrico further agreed to cease representing that this water, when taken internally, will cleanse the skin, have a significant laxative effect or be of value in treating skin diseases.

Baum's Ace Brand Corn, Callous (?) and Bunion Salve.—That this is an effective remedy or cure for corns, calluses, warts, bunions or ingrown toenails, is entirely safe for continued or repeated use or a "new" or "scientific remedy" for disfigured feet due to these disorders were among the misrepresentations to be discontinued in the advertising, according to a stipulation signed with the Federal Trade Commission in January 1942 by Joseph H. Baum, trading as Baum Laboratories, Brooklyn. He further agreed to cease disparaging competitive products and to discontinue use of the word "Laboratories" as part of his trade name.

Carnation Cold Tablets.—In October 1941 the Carnation Company of St. Louis signed a stipulation with the Federal Trade Commission, agreeing to discontinue advertisements of this product which did not clearly reveal that the habitual or excessive use of the tablets may be dangerous or that persons suffering from conditions characterized by acute pain accompanied by nausea and vomiting should avoid taking them. It was further stipulated, however, that such advertisements need contain only a conspicuously printed caution that the product was to be used only as directed on the label and that the label must contain an appropriate caution against improper use of the tablets and also give adequate directions for employing them.

Father John's Medicine.—A stipulation concerning this was signed with the Federal Trade Commission in January 1942 by Father John's Medicine Company, Inc., Lowell, Mass., formerly known as Carleton and Hovey Company. In this the concern agreed to cease representing the product as a remedy or effective treatment for colds or bronchial or throat irritations; as a preparation rich in vitamins other than A and D and as one capable of increasing the appetite. Further, the concern agreed to desist from advertising that the product will build resistance to bronchial and throat irritations or have any value in the preventive treatment thereof except to supply vitamin A in conditions in which it might be useful.

Goody's Headache Powders.—These are put out by a concern known as Goody's, Inc., Winston-Salem, N. C. In January 1942 this concern signed a stipulation with the Federal Trade Commission, agreeing to discontinue advertisements which failed to reveal conspicuously that its headache powders should not be used in excess of the dosage recommended, that frequent or long continued use may be dangerous, causing skin eruptions, mental derangement or dependence on a drug; that use of this product may cause collapse and that it should not be taken by children. The concern was permitted, however, to limit its warning in the advertising to the statement, "Caution: Use only as directed," if and when the directions in the labeling contain a warning to the same effect. The concern further agreed to desist from advertising that the use of its product will remove the cause of symptoms indicated by headache, neuralgia, muscular aches and pains or that the powders have any value other than as a temporarily alleviating agent. In at least three cases on record the government has taken action against Goody's, Inc., for violation of pure food and drug laws because their headache nostrum would be potentially injurious if used as directed on the label, chiefly on account of the acetanilid that it contained.

Hexin.—The Consolidated Royal Chemical Corporation, trading as Consolidated Drug Trade Products, Chicago, stipulated with the Federal Trade Commission in September 1941 that it would discontinue the following misrepresentations: that "Hexin" will relieve a cold or be of any benefit in treating the cold beyond giving temporary relief from the physical discomfort associated with that condition. The concern further agreed to discontinue any advertisements for Hexin which failed to reveal that frequent or continued use may be dangerous, causing serious blood disturbances, and that the product should not be taken in excess of the dosage recommended. The company was permitted, however, to employ the simple warning that its preparation should be used only as directed on the label if and when such label either contains a proper caution or specifically directs attention to such a caution in the accompanying labeling. In Oct. 1941 Benson and Dahl, Inc., Chicago, which handles the Hexin advertising signed a similar stipulation with the Commission.

Hoyt's Compound.—This is no longer to be represented as a competent remedy for kidney afflictions, biliousness, rheumatism, stomach ailments, indigestion or colds, as a product to tone up the system, restore health, regulate the bowels and cleanse the blood stream, or as a "modern discovery" made by the foremost authority in the United States. This was agreed in a stipulation signed with the Federal Trade Commission in March 1942 by Verne N. Seeley, Herman P. Doyle and Fred D. Grantham, trading as Hoyt Chemical Company, Denver. These persons further stipulated that they would discontinue use of the word "chemical" in their trade name or the word "chemists" used in any manner to imply that they are chemists and that they will stop employing the word "manufacturing" or terms of similar meaning to give the impression that they manufacture the products that they sell.

Jolo, Liverine, Bee Bee's Ru-Ma-Sol.—These nostrums are put out by an A. J. Whiteside, trading as Whiteside Company, Wilmington, Ohio. In a stipulation that he signed with the Federal Trade Commission in February 1942 he agreed to cease representing that any of his preparations is a new, scientific, natural or advanced medicine; that Jolo ends many forms of health disorders, has tonic action on the liver, quiets quivering nerves and relieves the system of colds; that Liverine enables the liver to function properly, cleanses the blood stream or overcomes skin eruptions; that Bee Bee's is a genuine medicine or a new or remarkable discovery for weakened kidneys or irritated bladder, and that Ru-Ma-Sol eliminates uric acid in the system, goes to the very source of rheumatism or is a competent treatment for underlying conditions indicated by such symptoms as rheumatic pains, swollen and stiffened fingers, hands, arms, feet, legs or joints, neuritis, sciatica, lumbago and stomach pains.

Miracle Salve.—This product was sold by one H. E. Studier, trading as Rev. H. E. Studier, Lincoln, Neb. In September 1941 Studier stipulated with the Federal Trade Commission that he would cease representing that "Miracle Salve" is a remedy or cure for, or has any beneficial effect in the treatment of, pains, gout, arthritis, neuritis or other ailments.

Orangeine.—This is advertised for use in relieving headache, neuralgia and the discomforts arising from head colds. According to a stipulation made with the Federal Trade Commission in January 1942, Kemp Lane, Inc., Le Roy, N. Y., will discontinue any advertising which failed to reveal that Orangeine should not be used in excess of the recommended dosage; that its frequent or continued use may be dangerous, causing collapse or a dependence on a drug, and that it should neither be taken by nor administered to children. The latter restriction, however, will be eased provided that the advertising shall contain a warning to use the product only as directed, if and when the same caution appears in the labeling. A similar stipulation was given to the Commission around the same time by F. A. Hughes Company, Inc., Rochester, N. Y., which handles the advertising of Orangeine.

Physique Control Course, Health-O-Flex System Courses and Health-O-Flexer.—One Anthony Matysek, trading as Antone Matysek, Baltimore, puts these out, the first in the form of a booklet, the second as a course of instruction and the third as an exercising device. In a stipulation which he signed with the Federal Trade Commission in February 1942 he agreed to discontinue the following advertising representations: that the booklet reveals new strength secrets and will enable one to build up the body, revitalize the spine, heart, lungs, kidneys, muscles and glands, increase vitality, create perfect circulation and correct rounded shoulders; that the Health-O-Flex System Courses teach one how to make his weakest spots his strongest or increase his strength and endurance; that the Health-O-Flexer constitutes an improved method of physical culture or gives strength, health or attractiveness to the body; that it reactivates the glands or ligaments, invigorates the internal organs, helps to eliminate surgical operations and the use of drugs and medicines, prevents colds, headaches, backaches, weakness or suffering and increases or reduces the weight as desired. Matysek further agreed to cease representing that any specific results claimed for his products are guaranteed or that any offer he made was limited as to time, when such was not a fact.

Stomavita, Femovita, Pulmotol and Renatone Pills.—These were advertised by one Robert Salazar of Los Angeles, trading as Los Angeles Pharmacal Company and as Hidalgo Pharmacy (Hidalgo Farmacia). In September 1941 the Federal Trade Commission accepted a stipulation from Salazar in which he agreed to discontinue the following misrepresentations: that "Stomavita" is an effective treatment for dyspepsia, acidity or stomach troubles generally or will permit the user to eat anything desired without ill effects; that "Femovita" corrects female complaints or is an effective treatment for nervousness or muscular pain due to these; that "Pulmotol" is a general tonic which aids in the growth of bones or teeth in children, stimulates organic energy and conquers nervous debility, and that "Renatone Pills" are a scientific discovery or have any beneficial action on the kidneys or that disorders such as rheumatism, stomach trouble, backaches, lumbago or arthritis are caused by acid in the kidneys or are attributable solely to kidney ailments.

Tobacco Redeemer.—This treatment promoted for the tobacco habit was said by the Federal Trade Commission to consist of a combination of drug preparations together with dietary information. In September 1941 J. E. Eggers, trading as Newell Pharmacal Company, St. Louis, signed a stipulation with the Commission to discontinue the representation that his product is certain to cure the tobacco habit and also to cease representing, by use of the word "Pharmacal" in his trade name or otherwise, that he prepares the treatments or maintains a pharmacy or pharmacal facilities or a laboratory wherein tests have been made indicating their efficacy.

Correspondence

NEEDED: SPINAL CORDS FROM FATAI OR OLD CASES OF POLIOMYELITIS

To the Editor:—To those of your subscribers who are interested in poliomyelitis I wish to make an appeal.

What seems to be a promising line of attack is being seriously hampered by lack of material. Spinal cords from cases of the disease, acute and even more particularly chronic, are needed. Therefore I beg that any one reading this letter will bear me in mind if the possibility of obtaining any such cord should come his way. Far from being a mere incidental, a single cord would be of major value. Accordingly the appeal is made especially to individual physicians and surgeons and to small hospitals which cannot be reached otherwise. Requirements are intact cords, or intact upper or lower halves; dura left on, but slit up back for good fixation; cord may be cut into equal thirds for convenience. Fixation preferably with 2 per cent glacial acetic acid in 95 per cent alcohol but may be with 10 per cent solution of formaldehyde in isotonic solution of sodium chloride solution; use about a pint; please fix straight. I shall gladly pay ten dollars for technical assistance employed in removing a cord. If sections are required for local records I prefer to prepare them myself—if donor removes blocks for this purpose it greatly impairs the value of the material. Correspondence is cordially invited.

H. CHANDLER ELLIOTT, Toronto 5, Canada.
Department of Anatomy, University of Toronto.

"FOUND: A ONE DAY CURE FOR SYPHILIS"

To the Editor: As I have been quoted without permission, serious objection is taken to the recent article of Mr. Paul de Kruif "Found: A One Day Cure for Syphilis" (*Reader's Digest*, September 1942).

First, this article is bound to dissatisfy a large number of conscientious patients suffering from syphilis. The course and the effects of the disease have been carefully explained to them by their physicians, and they have been satisfied and willing to carry out their treatment. "Everything was quiet along the Marne," and then they read or hear of this article and are greatly disturbed. Some think the physician does not know his business. They say "Here you promised to cure me and it is to take a year or more while Paul de Kruif writes I will be well after one day's treatment." Others query "What about this deadly arsenical treatment that you are giving me, while I might better be in a fever cabinet for a few hours, dozing away, smoking and listening to radio music?"

Second, it is most unfortunate that Mr. de Kruif goes back to 1931 to dig up some old statistical data over a ten year period on arsenical reactions (Cole, H. N., and others: Toxic Effects Following Use of the Arsphenamines, THE JOURNAL, Sept. 26, 1931, p. 897) and then attempts to compare them with present day practice. Needless to say, reactions from present day treatment of syphilis with arsenicals (mapharsen) and with bismuth compounds are almost nil. Deaths are practically unheard of.

Third, one must remember that data on syphilis therapy are not gathered overnight, as Mr. de Kruif would lead us to believe. Neither are they built up on 26 patients. It requires careful study of many patients and, too, observations of these same patients over a period of years. Serologic reactions over a period of a few months are worthless. The syphilologist who draws conclusions from such serologic reactions alone is bound to fall into grave error.

Finally, even if Mr. de Kruif felt it wise to write such an article, I wonder if the publishers of the *Reader's Digest* are blameless? In a way they are leaders in their field, if they confine themselves to their proper niche. Ordinarily articles intended to be medical in character are submitted not to lay editors but to critical medical editors. They are weighed from every angle and must pass the strictest inspection before being accepted. The evidence presented must be backed up by cold scientific data. This, of course, has not been done with Mr. de Kruif's article, for the *Reader's Digest* is not a medical publication and the publishers are not in a position to judge of the value of such an article.

The *Reader's Digest* has a wide field of usefulness. Its publishers are performing a service to the reading public. However, medicine is not in their line and they are doing a great disservice when they accept such unscientific, unsubstantiated articles as that of Mr. de Kruif's.

HAROLD N. COLE, M.D., Cleveland.

REPRINTS OF ARTICLES FOR RUSSIAN PHYSICIANS

To the Editor:—I have just received a letter dated May 25, 1942, from Prof. Alexander R. Luria, the prominent Russian neuropsychologist. Professor Luria, whose book in English "The Nature of Human Conflict" is well known to American readers and who was scheduled to visit this country to deliver the Salmon Memorial Lectures at the New York Academy of Medicine, is now in the province of Cheliabinsk in the Ural Mountains. He is directing a clinic for the rehabilitation of the brain injured in the war. He writes that he and his colleagues are very much in need of reprints from recent original American publications in the fields of brain pathology and abnormal psychology, particularly those dealing with reeducation and neurosurgery. He would like to receive such material of course as soon as possible.

The American-Russian Committee for Medical Aid to the Union of Socialist Soviet Republics, of which Prince Vladimir V. Koudasheff is the chairman and Dr. Michael Michailovsky is the treasurer, has offered to transmit to Professor Luria literature sent to them and designated for him. Their address is 55 West Forty-Second Street, New York City. It is also possible to mail directly to Prof. A. R. Luria, Neurosurgical Rehabilitative Clinic of Viem, Kisegatch Sanatorium, Cheliabinsk Oblast, U. S. S. R.

It is hoped that American medical men who have pertinent material will heed this call. It may furthermore be presumed that the needs of Professor Luria and his clinic are typical and that in general American scientists who have formerly corresponded with Russian colleagues should continue sending important reprints that in some way bear on war needs. Indeed, only three months ago I received from the Tbilisi Physiologic Institute a request for a reprint that is neither very important nor remotely related to war research. However, the situation has doubtless changed since, and correspondents may do well to discriminate for the time being in what they send.

The U. S. Post Office accepts first class matter and printed material not exceeding 4 pounds 6 ounces for mailing to Russia, and wherever locations of institutes and universities have been changed, as many have, the Soviet authorities no doubt have the information for proper forwarding.

GREGORY S. RAZRAN, PH.D.,
Department of Psychology, Queens College,
Flushing, N. Y.

COMMON ERRORS IN THIOCYANATE MANAGEMENT OF HYPERTENSION

To the Editor:—In the article of Drs. William O. Russell and William C. Stahl (THE JOURNAL, August 8, p. 1177) reporting a case of fatal poisoning from potassium thiocyanate treatment of hypertension they write repeatedly of an "accepted therapeutic dose," "the usually prescribed amount of the drug," "the standard and accepted therapeutic dose," "the usually prescribed dose," "the usually prescribed amount," "the dose of thiocyanate usually prescribed and regarded as safe." The main thesis which Barker developed and has reiterated in all his publications on this subject is that there is no usual, standard or accepted therapeutic dose. Each case is an individual dosage problem depending largely on the age of the patient, the degree of vascular sclerosis, efficiency of renal function, the increment of blood thiocyanate concentration over a short period of time and the presence or absence of congestive heart failure. In examining the protocol of this case one finds that renal function was impaired as evidenced by albuminuria, urea clearance of 27 per cent and nonprotein nitrogen of 43 mg. per hundred cubic centimeters. The liver edge was 2 cm. below the costal margin, presumptive evidence of congestive cardiac failure. Since edema fluid also stores thiocyanate, reabsorption of this fluid into the blood stream during the course of returning cardiac compensation allows the contained thiocyanate an opportunity to become stored in the blood and tissues.

The entire purpose of blood thiocyanate determination during the first weeks of administration is to study the increment of the substance in the blood after short intervals of therapy with small doses (0.15 to 0.3 Gm.) with a view of establishing a maintenance dosage. In the case reported the blood thiocyanate level rose from 4.5 to 15.2 mg. per hundred cubic centimeters within seven days on a dose of 0.6 Gm. of potassium thiocyanate in the presence of impaired renal function. While Barker's earliest papers reported nonfatal cases with blood thiocyanate levels up to 45 mg. per hundred cubic centimeters it was clearly pointed out that such levels were toxic and the situation of those patients fraught with danger. The authors quote Barker to the effect that "significant toxicity begins to appear from 15 to 30 mg." It has been emphasized that 15 mg. per hundred cubic centimeters of blood thiocyanate is the borderline between "safe" limits and the "severe" toxic manifestations (Wald, M. H.; Lindberg, H. A., and Barker, M. H.: The Toxic Manifestations of the Thiocyanates, THE JOURNAL, March 25, 1939, p. 1120). It is impossible, therefore, to agree with the authors that ". . . the blood cyanates were always at supposedly nontoxic levels." The occurrence of such a rapid increase in blood thiocyanate and that to the critical level of 15.2 mg. per hundred cubic centimeters constitutes a clear indication for temporary discontinuance of the drug. Resumption of medication at much reduced dosage should occur after the blood thiocyanate level has returned to from 8 to 12 mg. per hundred cubic centimeters. A review of Garvin's case (The Fatal Toxic Manifestations of the Thiocyanates, THE JOURNAL, March 25, 1939, p. 1125) clearly shows that substantially the same facts hold true. Reference should be made to the article of Kurtz, Shapiro and Mills (The Results of Sulfocyanate Therapy of Hypertension, *Am. J. M. Sc.* **202**:378 [Sept.] 1941) for a discussion of this case.

I would expand on the conclusions of Drs. Russell and Stahl by stating that any patient whose blood level exceeds 15 mg. per hundred cubic centimeters is in danger of severe toxic manifestations which may be fatal. Moreover, I wish to reiterate that there is no "usual or standard dosage" for thiocyanate.

MAURICE H. WALD, M.D., Winnetka, Ill.

MERCURIAL DIURETICS

To the Editor:—To those of us who practiced medicine before the era of the mercurial diuretics, the articles which appeared in THE JOURNAL, July 25, pages 998 to 1011, seem almost sacrilegious. Then to cap the climax there is a case report in the August 8 issue in which a death is reported which cannot be attributed, even by the widest stretch of the imagination, to the injection of a mercurial diuretic, one month before death.

Only in the paper of Drs. Graff and Nadler is there even a hint as to the enormous number of injections that have been given in the course of the years. Still they were able to collect only twenty-six deaths in sixteen years, and even in some of these it is questionable whether a mercurial diuretic played any part in the deaths. Mercurial diuretics are particularly indicated in cases in which sudden deaths are not uncommon and, considering the fact that unquestionably millions of injections have been given, pure chance would give us considerably more deaths than those reported.

I myself have given or prescribed over a thousand intravenous injections of mercupurin without any untoward results, but there have been sudden deaths in these cases entirely unrelated to the injections. During May, June, July and part of August of this year I gave an elderly woman an injection of mercupurin every four or five days with excellent results. On August 11 an injection was indicated but, seeing the patient late, I decided to wait until the next day so that the patient's rest would not be disturbed. She received no injection but died very suddenly less than one hour later. Pure chance prevented a death immediately following a mercupurin injection.

Many more deaths, I am sure, result from the nonuse of mercurial diuretics in indicated cases than from their use. I fear the articles in question may influence the uncritical or inexperienced in the use of a most valuable drug—a drug which is truly remarkable when used in the proper cases, which by their very nature are inseparably associated with the possibility of sudden death.

MOSES SALZER, M.D., Cincinnati.

SILVER IN THE URINE

To the Editor:—We have read the communication by Dr. Joseph C. Aub and Dr. Lawrence T. Fairhall (THE JOURNAL, Jan. 24, 1942, p. 319) in which the view is expressed that silver is not excreted in the urine. Since the comparatively nonstrategic nature of silver has encouraged its industrial use during the emergency to replace some of its lowly but more essential metallic relatives, the subject of silver pharmacology may assume greater importance. We wish to call attention to our report of a case of obscure argyria with argyremia (THE JOURNAL, Nov. 17, 1934, p. 1521) in which it was demonstrated spectrographically that under certain conditions, at least, significant amounts of silver may be eliminated from the body by excretion in the urine even three months after the cessation of silver ingestion. However, in an old case of well pigmented argyria in which there had been no abnormal silver absorption for at least ten years, and also in normal controls, the metal could not be detected in the urine or was detected only as an extremely faint trace.

HAROLD BLUMBERG, Sc.D.
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T. NELSON CAREY, M.D.
Associate Professor of Medicine, University of Maryland School of Medicine and College of Physicians and Surgeons.

Baltimore.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 15-16, 1943. Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten, 535 North Dearborn Street, Chicago.

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Sept. 12, page 148.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 15-16. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ARIZONA: * Phoenix, Oct. 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: * *Medical.* Little Rock, Nov. 5-6. Sec., Dr. D. L. Owens, Harrison. *Eclectic.* Little Rock, Nov. 5. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written.* Sacramento, Oct. 19-22. *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: * *Endorsement.* Denver, Oct. 6. *Written.* Denver, Oct. 7-9. Application must be on file not later than Sept. 20. Sec., Dr. John B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT: * *Medical. Written.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, Nov. 10-11. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DISTRICT OF COLUMBIA: * Washington, Nov. 9-10. Sec., Commission on Licensure, Dr. George C. Ruhland, 6150 East Municipal Bldg., Washington.

FLORIDA: * Jacksonville, Nov. 23-24. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 13-14. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Jan. 12. Dir., Bureau of Occupational Licenses, Mr. Walter Curtis, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 13-15. Superintendent of Registration, Mr. Philip M. Harman, Department of Registration and Education, Springfield.

INDIANA: Indianapolis, Jan. 13-15. Sec., Board of Medical Registration and Examination, Dr. W. C. Moore, 301 State House, Indianapolis.

KENTUCKY: Louisville, March 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, Nov. 3-4. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical.* Baltimore, Dec. 8-11. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 17-20. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN: * Lansing, Oct. 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: * Minneapolis, Oct. 20-22. Sec., Dr. Julian F. Du Bois, 230 Lowry Medical Art Bldg., St. Paul.

MISSISSIPPI: Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: Kansas City, Oct. 3. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 6. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 13-14. Sec., Dr. LeGrand Ward, 135 Sena Plaza, Santa Fe.

NORTH CAROLINA: December. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement.* Oct. 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Dec. 9. Sec., Dr. J. D. Osborn, Jr., Frederick.

PENNSYLVANIA: Philadelphia, January. Act. Sec., Bureau of Professional Licensing, Mrs. Marguerite G. Steiner, Department of Public Instruction, 358 Education Bldg., Harrisburg.

RHODE ISLAND: * Providence, Oct. 1-2. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, Sept. 30-Oct. 3. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, Dec. 28-30. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

UTAH: Salt Lake City, June. Dir., Department of Registration, Mr. G. V. Billings, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 8-11. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WEST VIRGINIA: Charleston, Oct. 26-28. Commissioner, Public Health Council, Dr. C. F. McClintic, State Capitol, Charleston.

WYOMING: Cheyenne, Oct. 5-6. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Oct. 10. Address State Board of Healing Arts, 1945 Yale Station, New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 19-20. Sec., Commission on Licensure, Dr. George C. Ruhland, 6150 East Municipal Bldg., Washington.

FLORIDA: Gainesville, Oct. 31. Application must be on file not later than Oct. 16. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, Oct. 14. Dir., Division of Licensure & Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MINNESOTA: Minneapolis, Oct. 6-7. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: Lincoln, Oct. 6-7. Dir., Bureau of Examining Boards, Mrs. Jeannette Crawford, 1009 State Capitol Bldg., Lincoln.

NEW MEXICO: Albuquerque, Feb. 1. Sec., Miss Pia Joerger, State Capitol, Santa Fe.

OKLAHOMA: Oklahoma City, May, 1943. Sec., Dr. Oscar C. Newman, Shattuck.

OREGON: Portland, Oct. 31. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

SOUTH DAKOTA: Sioux Falls, Dec. 4-5. Sec., Dr. G. M. Evans, Yankton.

Maine March Report

The Maine Board of Registration of Medicine reports the written examination for medical licensure held at Portland, March 10-11, 1942. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined, 8 of whom passed and 2 failed. Four physicians were licensed to practice medicine by reciprocity and 3 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Harvard Medical School		(1939)	1
Tufts College Medical School		(1919),* (1940)	2
New York University College of Medicine		(1939)	1
Medizinische Fakultät der Universität Wien		(1935), (1936)	2
Regia Università di Napoli Facoltà di Medicina e Chirurgia		(1938)	1
Universität Bern Medizinische Fakultät		(1937)	1

School	FAILED	Year Grad.	Number Failed
University of Montreal Faculty of Medicine		(1941)	1
Deutsche Universität Medizinische Fakultät, Prag		(1937)	1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Jefferson Medical College of Philadelphia		(1930)	Penna.
Temple University School of Medicine		(1936)	Penna.
Philipps-Universität Medizinische Fakultät, Marburg		(1938)	New Jersey
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Pecs		(1926)	Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.
Yale University School of Medicine		(1937)
University of Sheffield Faculty of Medicine		(1937)
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1937)

* License has not been issued.

Texas March Report

The Texas State Board of Medical Examiners reports the written examination for medical licensure held at Galveston, March 23-25, 1942. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. One hundred and two candidates were examined, 98 of whom passed and 4 failed. Twenty-three physicians were licensed to practice medicine by reciprocity and 1 physician so licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
George Washington University School of Medicine		(1942)	1
Northwestern University Medical School		(1941)	1
Louisiana State University School of Medicine		(1942)	1
University of Texas Medical Branch		(1936), (1942, 90)	91
Université de Nancy Faculté de Medicine		(1938)	1
Osteopaths*			3

School	FAILED	Year Grad.	Number Failed
National University of Athens School of Medicine		(1930)	1
Osteopaths*			3

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1927)	Arizona,
(1933), (1940, 2) Arkansas, (1936) Virginia College of Medical Evangelists		(1941)	Penna.

University of Colorado School of Medicine	(1933)	Colorado
Georgetown University School of Medicine	(1937)	New Mexico
Howard University College of Medicine	(1935)	N. Carolina
University of Georgia Medical Department	(1906)	Georgia
Indiana University School of Medicine	(1938)	Indiana
University of Kansas School of Medicine	(1924)	Kansas
Louisiana State University Medical Center	(1936)	Louisiana
Louisiana State University School of Medicine	(1940)	Louisiana
Tulane University of Louisiana School of Medicine	(1940)	Louisiana
University of Minnesota Medical School	(1929)	Iowa
St. Louis University School of Medicine	(1918)	Missouri
University of Buffalo School of Medicine	(1932)	New York
Ohio State University College of Medicine	(1933)	Ohio
University of Oklahoma School of Medicine	(1939)	Ohio
University of Tennessee College of Medicine	(1936)	Tennessee
Vanderbilt University School of Medicine	(1924)	Tennessee
University of Manitoba Faculty of Medicine	(1920)	Maryland

LICENSED BY ENDORSEMENT

School	Year Grad.	Endorsement of
Rush Medical College	(1923)	Hawaii

* Examined in medicine and surgery.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Oklahoma Law Authorizing the Compulsory Sexual Sterilization of Habitual Criminals Unconstitutional.—The Oklahoma Habitual Criminal Sterilization Act (Oklahoma Statutes Annotated, title 57, section 171-195) authorizes the attorney general to institute proceedings for the sexual sterilization of any person adjudged to be a habitual criminal, defined, in effect, to mean a person who has been convicted three or more times to final judgment of the commission of crimes amounting to felonies involving moral turpitude and on the basis of the last conviction sentenced to imprisonment in an Oklahoma penal institution. The act provides, however, that "offenses arising out of the violation of the prohibitory laws, revenue acts, embezzlement, or political offenses, shall not come or be considered within the terms of" the act. Questions of fact involved in a proceeding such as that referred to may, on the demand of either party, be tried by jury and, if the court or jury, as the case may be, finds the defendant to be a habitual criminal and that he or she may be rendered sterile without detriment to his or her general health, the court may, subject to an appeal to the Supreme Court of Oklahoma, order sterilization. Such a proceeding was instituted against the defendant Skinner, who was confined in a state penitentiary and had been convicted once of stealing chickens and twice of robbery with firearms, the last conviction being had in 1934, a year before the enactment of the act. A jury found that the defendant was a habitual criminal within the meaning of the act and that his general health would not be impaired by a sterilization operation. Accordingly, the trial court ordered him to be made sexually sterile, and the defendant appealed to the Supreme Court of Oklahoma, which affirmed the judgment of the lower court. (*Skinner* v. *State of Oklahoma ex rel. Williamson*, 115 P. (2d) 123; J. A. M. A. **117:**1463 [Oct. 25] 1941.) The defendant then brought certiorari to the Supreme Court of the United States.

The defendant questioned the validity of the act under which he had been ordered to be made sexually sterile on a number of constitutional grounds which the Supreme Court did not find necessary to pass on, since, in the opinion of the court, the act in question was clearly violative of the equal protection of the law clause of the federal constitution because of the inequality of treatment permitted by the act. The inequality of treatment is made possible, said the court, by the provision of the act that "offenses arising out of the violation of the prohibitory laws, revenue acts, embezzlement, or political offenses" should not be considered within its terms. In Oklahoma grand larceny is a felony and larceny is grand larceny when the property taken exceeds $20 in value. Embezzlement, which is specifically excluded from the terms of the habitual criminal sterilization act, is punishable in the manner prescribed for feloniously stealing property of the value of that embezzled. Hence, a person who embezzles property worth more than $20 is guilty of a felony. A clerk who appropriates more than $20 from his employer's till and a stranger who steals the same amount are thus both guilty of felonies. If the stranger repeats his act and is convicted three times, he may be sterilized. But the clerk is not subject to the pains and penalties of the sterilization act no matter how large his embezzlements nor how frequent his convictions. A person who enters a chicken coop and steals chickens commits a felony; and he may be sterilized if he is thrice convicted. If, however, he is a bailee of the property and fraudulently appropriates it, he is an embezzler and hence not subject to sterilization no matter how habitual his proclivities for embezzlement are and no matter how often his conviction. Thus the nature of the two crimes is intrinsically the same and they are punishable in the same manner. Furthermore, the line between them—that is, the line between a larceny and an embezzlement—follows close, technical distinctions. There may be larceny by fraud rather than embezzlement even when the owner of the personal property delivers it to the defendant, if the latter has at that time a fraudulent intention to make use of the possession as a means of converting such property to his own use and does so convert it. If, however, the fraudulent intent occurs after the delivery of the property and the defendant then converts the property, he is guilty of embezzlement. Whether a particular act is larceny by fraud or embezzlement thus turns not on the intrinsic quality of the act but on when the felonious intent arose—a question for the jury under appropriate instructions.

This court, continued the court, has held that the equal protection clause of the constitution does not prevent the legislature from recognizing the "degrees of evil" and that the constitution does not require things which are different in fact or opinion to be treated in law as though they were the same. Thus, if we had here only a question as to a state's classification of crime, such as embezzlement or larceny, no substantial federal question would be raised, for a state is not constrained in the exercise of its police power to ignore experience which marks a class of offenders or a family of offenses for special treatment. Nor is a state prevented by the equal protection clause from confining its restrictions to those classes of cases in which the need is deemed to be clearest. As was stated by this court in *Buck* v. *Bell*, 274 U. S. 200, 47 S. Ct. 584, in which the validity of the Virginia compulsory sterilization law was upheld:

> The law does all that is needed when it does all that it can, indicates a policy, applies it to all within the lines, and seeks to bring within the lines all similarly situated so far and so fast as its means allow.

But, continued the Supreme Court, the Oklahoma habitual criminal sterilization act, here under consideration, runs afoul of the equal protection clause though we give Oklahoma that large deference which the rule announced requires. We are dealing here with legislation which involves one of the basic civil rights of man. Marriage and procreation are fundamental to the very existence and survival of the race. The power to sterilize, if exercised, may have subtle, far reaching and devastating effects. In evil or reckless hands it can cause races or types which are inimical to the dominant group to wither and disappear. There is no redemption for the individual whom the law touches. Any experiment which the state conducts is to his irreparable injury. He is forever deprived of a basic liberty. We advert to these matters merely in emphasis of our view that strict scrutiny of the classification which a state makes in a sterilization law is essential; less unwittingly or otherwise invidious discriminations are made against groups or types of individuals in violation of the constitutional guaranty of just and equal laws. The guaranty of equal protection of the laws is a pledge of the protection of equal laws. When the law lays an unequal hand on those who have committed intrinsically the same quality of offense and sterilizes one and not the other, it has made as invidious a discrimination as if it had selected a particular race or nationality for oppressive treatment. Sterilization of those who have thrice committed grand larceny with immunity for those who are embezzlers is a clear, pointed,

unmistakable discrimination. Oklahoma makes no attempt to say that he who commits larceny by trespass or trick or fraud has biologically inheritable traits which he who commits embezzlement lacks. Oklahoma's line between larceny by fraud and embezzlement is determined, as we have noted, with reference to the time when the fraudulent intent to convert the property to the taker's own use arises. We have not the slightest basis for inferring that that line has any significance in eugenics nor that the inheritability of criminal traits follows the neat legal distinctions which the law has marked between those two offenses. In terms of fines and imprisonment the crimes of larceny and embezzlement rate the same under the Oklahoma laws. Only when it comes to sterilization are the pains and penalties of the law different. The equal protection clause would indeed be a formula of empty words if such conspicuously artificial lines could be drawn. In *Buck* v. *Bell*, supra, the Virginia statute was upheld though it applied only to feebleminded persons confined in state institutions. But it was pointed out that "so far as the operations enable those who otherwise must be kept confined to be returned to the world, and thus open the asylum to others, the equality aimed at will be more nearly reached." Here there is no such saving feature. Embezzlers are forever free. Those who steal or take in other ways are not. If such a classification were permitted, the technical common law concept of some crimes based on distinctions which are very largely dependent on history for explanation could readily become a rule of human genetics. The Supreme Court accordingly reversed the judgment of the trial court ordering the sexual sterilization of the defendant.

In a special concurring opinion, Mr. Chief Justice Stone argued that the act was constitutionally offensive not because of its failure to afford equal protection but rather because the act by its wholesale condemnation of a class to such an invasion of personal liberty as sterilization without opportunity to any individual to show that his is not the type of case which would justify resort to sterilization does not satisfy the demands of due process. The act, it is true, does provide a hearing for an accused, but the hearing contemplated is a hearing not on the question as to whether or not the criminal defects, if any, observable in him are transmissible to potential offspring but solely on whether or not the accused is a habitual criminal, as defined in the act, and whether or not the accused may be rendered sexually sterile without detriment to his general health. Undoubtedly, said the Chief Justice, a state may, after appropriate inquiry, constitutionally interfere with the personal liberty of the individual to prevent the transmission by inheritance of his socially injurious tendencies. But until now the Supreme Court has not been called on to say that a state may do so without giving the defendant a hearing and opportunity to challenge the existence as to him of the only facts which could justify so drastic a measure. Science has found, and the law has recognized, that there are certain types of mental deficiency associated with delinquency which are inheritable. But the state does not contend—nor can there be any pretense—that either common knowledge or experience, or scientific investigation, has given assurance that the criminal tendencies of any class of habitual offenders are universally or even generally inheritable. In such circumstances, inquiry whether such is the fact in the case of any particular individual cannot rightly be dispensed with. Whether the procedure by which a statute carries its mandate into execution satisfies due process is a matter of judicial cognizance. A law which condemns without hearing all the individuals of a class to so harsh a measure as the present one because some or even many merit condemnation is lacking in the first principles of due process. And so, while the state may protect itself from the demonstrably inheritable tendencies of the individual which are injurious to society, the most elementary notions of due process would seem to require it to take appropriate steps to safeguard the liberty of the individual by affording him, before he is condemned to an irreparable injury in his person, some opportunity to show that he is without such inheritable tendencies.—*Skinner v. State of Oklahoma ex rel. Williamson, Atty. Gen. of Oklahoma, 62 S. Ct. 1110 (1942).*

Libel and Slander: Report by Examining Physician to Examinee's Employer Not Actionable.—The plaintiff, apparently to retain her employment with a certain federal agency, submitted herself to examination by the physician defendant to determine her fitness for the work in which she was employed. As required, he reported the results of his examination to the regional head of the federal agency. As to just what that report contained, the decision here abstracted does not make clear, but seemingly, at least in the plaintiff's view, it cast a reflection on her mentality, and she subsequently brought suit for libel, based on the report, against the physician. The trial court directed a verdict in favor of the physician and the plaintiff appealed to the Supreme Court of Florida, division A.

The Supreme Court held that the physician in reporting the results of his examination of the plaintiff to her superior in the federal agency had not committed any actionable libel. In so holding, the court quoted at length from 33 American Jurisprudence 168-170 and 36 C. J. 1242, which would seem to be authority for the statements following: The report of the physician with respect to his examination to determine fitness for employment of an employee is qualifiedly privileged if made in good faith and without actual malice and if made to a person having a legitimate interest in the subject matter of the communication or report. The report in this case was made by the physician in good faith and without actual malice, and since it was made to her superior in the federal agency it was made to one having a legitimate interest in the subject matter of the report. Under such circumstances, even if the report was erroneous, the physician would have a complete defense in an action for libel based on the report. Aside from the question of qualified privilege, however, the court did not think that the report complained of, when properly and reasonably construed, constituted the reflection on the plaintiff's mentality which the plaintiff attributed to it. In fact, as the court construed the report, it constituted no reflection whatever on her character or mental status.

For the reasons stated, the judgment in favor of the physician was affirmed.—*Leonard v. Wilson, 8 So. (2d) 12 (Fla., 1942).*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 11-14. Dr. W. L. Benedict, 102 Second Ave., S.W., Rochester, Minn., Acting Secretary.

American Academy of Pediatrics, Chicago, Nov. 4-7. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Academy of Physical Medicine, Boston, Oct. 14-17. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.

American Clinical and Climatological Association, Princeton, N. J., Oct. 12-14. Dr. James Bordley, Johns Hopkins Hospital, Baltimore, Secretary.

American Hospital Association, St. Louis, Oct. 12-16. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Secretary.

American Public Health Association, St. Louis, Oct. 27-30. Dr. Reginald M. Atwater, 1790 Broadway, New York, Executive Secretary.

Association of Military Surgeons of the United States, San Antonio, Texas, Nov. 5-7. Colonel James M. Phalen, Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society (House of Delegates only), Denver, Sept. 23-24. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 13. Dr. W. O. La Motte, Medical Arts Bldg., Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Sept. 29-Oct. 1. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.

Indiana State Medical Association, French Lick, Sept. 29-Oct. 1. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-Oct. 1. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 22-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.

Mississippi Valley Medical Society, Quincy, Ill., Sept. 30-Oct. 2. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 24-26. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.

New York State Association of Public Health Laboratories, Albany, Nov. 6. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 26-30. Dr. J. D. McCarthy, 1036 Medical Arts Bldg., Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 5-8. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Vermont State Medical Society, Montpelier, Oct. 1. Dr. Benjamin F. Cook, 154 Bellevue Ave., Rutland, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 5-7. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

12:1-36 (July) 1942

Epidemiology of Poliomyelitis. D. G. Gill, Montgomery.—p. 1.
Pathology of Poliomyelitis, with Special Reference to Observations in Walker County, Ala. A. E. Casey, New Orleans.—p. 2.
Acute Stage of Poliomyelitis. C. A. Grote, Huntsville.—p. 4.
Orthopedic Management of Anterior Poliomyelitis. H. E. Conwell, Birmingham.—p. 5.

American Heart Journal, St. Louis

23:739-890 (June) 1942

Clinical Features of Tricuspid Stenosis: Study of Trivalvular Stenosis. J. A. Smith and S. A. Levine, Boston.—p. 739.
Mechanisms Involved in Acute Fatal Nontraumatic Collapse Associated with Physical Exertion. E. Jokl and M. M. Suzman, Johannesburg, South Africa.—p. 761.
*Cold Pressor Test in Subjects with Normal Blood Pressure: Report of Observations on 350 Subjects, with Special Reference to Family History. R. H. Feldt and D. E. W. Wenstrand, Milwaukee.—p. 766.
Effect of Pentobarbital on Cardiac Conduction System of Digitalized Dog's Heart. T. R. Van Dellen, R. C. Roberts and J. R. Miller, Chicago.—p. 772.
Ergographic Studies: Description of New Device and Observations on Normal Subjects and on Patients with Intermittent Claudication. R. H. Goetz, Mowbray, South Africa.—p. 782.
Studies on Third Heart Sound. N. H. Boyer, Boston.—p. 797.
*Therapeutic Pericarditis by Intrapericardial Injection in Chronic Coronary Insufficiency: Preliminary Report. H. L. Rakov, Kingston, N. Y.—p. 803.
Apical Diastolic Murmurs Without Mitral Stenosis. W. Weinstein and M. Lev, Chicago.—p. 809.
Evaluation of Local Vasodilator Effect of Acetyl-Beta-Methylcholine Chloride (Mecholyl) by Iontophoresis. D. I. Abramson, S. M. Fierst and K. Flachs, Cincinnati.—p. 817.
*Mixed Infections in Bacterial Endocarditis. E. S. Orgain and Mary A. Poston, Durham, N. C.—p. 823.
Comparison of Electrocardiographic Changes Observed During "Anoxemia Test" on Normal Persons and on Patients with Coronary Sclerosis. J. E. Patterson, T. W. Clark and R. L. Levy, New York.—p. 837.
Rationale of Operative Treatment of Subacute Bacterial Endarteritis Superimposed on Patent Ductus Arteriosus. A. S. W. Touroff, New York.—p. 847.

Cold Pressor Test.—Observations on cold pressor tests in 350 persons with normal blood pressure are presented by Feldt and Wenstrand. The data obtained by them with regard to the family history do not agree with those of Hines. Twenty-nine and seven-tenths per cent were hyperreactors to the test, and 27.4 per cent had a family history of hypertensive cardiovascular disease. There was no relationship between the response to the cold pressor test and the family history.

Therapeutic Pericarditis.—Two cases of pericarditis produced by the injection of 18 cc. of a 5 per cent solution of sodium morrhuate and 2 cc. of iodochlor directly into the pericardial sac of man without exposing the heart are reported. Rakov caused the pericarditis with the hope of benefiting the chronic coronary insufficiency. The result was apparently beneficial. The clinical manifestations of the pericarditis were fever, leukocytosis and pericardial friction rub, and, although the alterations in the ST segment usually observed in acute pericarditis were absent, later electrocardiograms showed T wave inversions suggestive of a healing stage. These T wave alterations may be accepted as evidence that the epicardial barrier between intercoronary and extracoronary circulation was removed. The clinical improvement observed might be caused by the rapid opening of intercoronary communications. Further observation and microscopic study of the patients is necessary.

Mixed Infections in Bacterial Endocarditis.—From the blood of 6 patients with bacterial endocarditis Orgain and Poston repeatedly cultured two or more distinct species of bacteria. In 2 the organisms were Streptococcus viridans and Streptococcus hemolyticus, in 1 Strep. viridans and Strep. hemolyticus growing in symbiosis with an unidentified gram negative rod, in 1 Strep. viridans and Hemophilus parainfluenzae, in 1 Streptococcus fecalis and Strep. hemolyticus and in 1 Neisseria gonorrheae and a nonhemolytic anaerobic streptococcus. In the first 5 the organisms were grown on routine laboratory mediums, while in the sixth gonorrhea organisms were suspected and appropriate mediums were employed. There was little in the history, physical and laboratory data and clinical course of the patients to suggest mixed infection. Therefore the necessity for careful bacteriologic study as the only means of identification is obvious. Recognition of a mixed infection in bacterial endocarditis is of fundamental importance in therapy, since all organisms must be eradicated from the blood and the vegetations if a cure is to be accomplished.

American J. Digestive Diseases, Fort Wayne, Ind.

9:211-240 (July) 1942

Clinical Roentgenologic Review of Literature for 1941 Pertaining to Digestive Tract. M. Feldman, Baltimore.—p. 211.
Hidradenitis Suppurativa: Diagnosis and Treatment of Its Perianal Manifestations. R. J. Jackman, Rochester, Minn.—p. 220.
Lipolytic Analysis of Duodenal Contents. B. N. Craver and B. S. Walker, Boston.—p. 223.
Purpura Due to Vitamin K Deficiency in Anorexia Nervosa. P. M. Aggeler, S. P. Lucia and H. M. Fishbon, San Francisco.—p. 227.
*Use of Sulfaguanidine in Nonspecific Ulcerative Colitis and Other Infections of the Bowel. J. B. Kirsner, Enid C. Rodaniche and W. L. Palmer, Chicago.—p. 229.
Experiments on Relationship of Neurohypophysis to Gastric Secretion. E. G. Gross, W. R. Ingram and N. W. Fugo, Iowa City.—p. 234.
*Stricture of Rectum Due to Lymphogranuloma Venereum: Symptoms and Treatment with Sodium Sulfanilyl Sulfanilate. J. G. Levy, E. C. Holder and J. G. M. Bullowa, New York.—p. 237.

Sulfaguanidine in Nonspecific Ulcerative Colitis.—Kirsner and his co-workers discuss their experience with sulfaguanidine in treating 20 patients; 12 had nonspecific ulcerative colitis, 2 also had venereal lymphogranuloma of the rectum, 2 also had bacillary dysentery and 4 had miscellaneous intestinal infections. The sulfaguanidine was used in addition to the usual therapy employed for each disorder. The amount of the drug used and the duration of treatment varied according to the individual. It appears from the study that sulfaguanidine is of no value in the management of nonspecific ulcerative colitis. However, since it is possible that related compounds may prove beneficial, their continued trial in nonspecific ulcerative colitis seems justified. The drug was ineffective in the treatment of 1 patient with venereal lymphogranuloma and of definite, though not curative, value in the other. The clinical improvement was associated with a definite decrease in the bacterial count of the feces. However, sulfaguanidine had no advantage over other sulfonamides in the treatment of this condition. Chemotherapy was of slight and temporary value in the treatment of 2 patients with a Shigella paradysenteriae Flexner infection but was of no benefit in 1 with a paratyphoid B infection and in another with an infection of the biliary tract. Sulfaguanidine in daily doses of 10 to 15 Gm. usually decreased the bacterial count of the feces and transformed the flora from one predominantly coliform to one composed almost entirely of gram positive organisms.

Stricture of Rectum Due to Venereal Lymphogranuloma.—Levy and his associates treated 118 patients suffering from rectal stricture due to venereal lymphogranuloma with sodium sulfanilyl sulfanilate. The initial dose was 5 Gm. and thereafter 0.5 Gm. three times a day. Many of the patients had previously received several forms of chemotherapy. After three to four weeks there was more striking improvement with sodium sulfanilyl sulfanilate than with any previous treatment. That anemia diminished was evidenced by an increase in erythrocytes and hemoglobin, gain in weight, diminished edema, regeneration of the rectal mucosa and relief of symptoms. Since sodium sulfanilyl sulfanilate was used, dilation was necessary for only 4 patients: 5 per cent as against the previous 75 per cent. None of the patients treated with sodium sulfanilyl sulfanilate required colostomy. However, the patients

continued to have a positive Frei test. Many patients had complete disappearance of symptoms. When discharge persisted, sulfathiazole either alone or with sodium sulfanilyl sulfanilate caused it to disappear in most cases. The persistent discharge was probably due to secondary bacterial infection which required sulfathiazole.

American Journal of Medical Sciences, Philadelphia

204:1-156 (July) 1942

*Life Saving Power of "Safe" Universal Donor Blood in Exsanguinating Hemorrhage. A. S. Wiener and S. S. Pennell, Brooklyn.—p. 1.

Gelatin as Substitute for Blood After Experimental Hemorrhage. H. Gordon, L. J. Hoge and H. Lawson, Louisville, Ky.—p. 4.

Studies on Hemorrhagic Agent 3,3'-Methylene-Bis-(4-Hydroxycoumarin): II. Method of Administration and Dosage. O. O. Meyer, J. B. Bingham and Velma H. Axelrod, Madison, Wis.—p. 11.

Renal Blood Flow, Glomerular Filtration Rate and Degree of Tubular Reabsorption of Glucose in Renal Glycosuria. M. Friedman, A. Selzer, J. Sugarman and M. Sokolow, San Francisco, with technical assistance of Eleanor Kruger.—p. 22.

Immunity in Diabetes: IV. Measurements of Phagocytic Activity in Diabetes Mellitus. R. Richardson, Philadelphia.—p. 29.

Studies on Galactose Tolerance, with Especial Reference to Thyroid Disease. J. A. Rosenkrantz, M. Bruger and A. J. Lockhart, New York.—p. 36.

Estrogen-like Action of Desoxycorticosterone Acetate on Altered Electrocardiogram Seen in Various Hypo-Ovarian States. D. Scherf and T. H. McGavack, New York.—p. 41.

Studies on Congestive Heart Failure: II. Impaired Renal Excretion of Sodium Chloride. P. H. Futcher and H. A. Schroeder, New York.—p. 52.

Studies on "Essential" Hypertension: IV. Early Arterial Hypertension. H. A. Schroeder, New York.—p. 62.

Experimental Chronic Hypertension in Rat. A. Grollman and J. R. Williams Jr., Winston-Salem, N. C.—p. 73.

*Serum Cholesterol and Atherosclerosis in Chronic Glomerulonephritis. A. Steiner and Beatrice Domanski, New York.—p. 79.

Instances of Disagreement in Results of Two Types of Oral Glucose Tolerance Tests. P. H. Langner Jr. and E. J. Dewees, Philadelphia.—p. 85.

Studies of Substituted Vinyl Barbituric Acids: II. The Clinical Use of Sodium 5-Ethyl-5-(1-Methyl-1-Butenyl) Barbiturate (Vinbarbital Sodium). J. P. Hendrix, Durham, N. C.—p. 93.

Gastroscopic Observations in Pulmonary Tuberculosis. J. Flexner and O. Baum, New York.—p. 101.

Unusual Case of Amebic Hepatitis. L. Bauman, New York.—p. 105.

Acute Perforated Duodenal Ulcer Following Metrazol Therapy. J. A. Tuta and J. B. Batko, Chicago.—p. 107.

Diet Calculator for Simplifying Diet Prescription in Diabetes Mellitus. T. G. Randolph, Milwaukee.—p. 111.

"Safe" Universal Donor Blood in Exsanguinating Hemorrhage.—As a precaution in 20 group AB patients Wiener and Pennell neutralized the isoagglutinins in the blood from group O donors by adding a solution of purified A and B substances as recommended by Witebsky, Klendshoj and Swanson. Grouping tests of a patient's blood after transfusions of neutralized group O and group AB blood showed it to consist of a mixture of approximately equal parts of group O and group AB blood, demonstrating that the two bloods remained in the patient's circulation. The fact that this patient's hemoglobin after a subtotal gastrectomy was only 88 per cent while on admission it had been 100 per cent, and this despite the fact that more than 5 liters (5,000 cc.) of blood had been transfused, indicates that he lost at least as much blood as he received. In fact the patient must have been almost completely exsanguinated and there can be no doubt that without the transfusions he could not have survived the operative procedure. The transfusion of plasma alone would undoubtedly have been inadequate to maintain life. In smaller hemorrhages the loss of erythrocytes is not serious, and satisfactory results can be obtained by merely restoring the blood volume with the transfusion of plasma. In emergencies when little or no whole blood is available, plasma is of great value and it is far superior to dextrose and saline infusions; but, if the hemorrhage continues, at least one transfusion of whole blood should be given for every two or three transfusions of plasma. Transfusion of outdated bank blood would result in only temporary benefit.

Serum Cholesterol and Atherosclerosis in Chronic Glomerulonephritis.—Steiner and Domanski studied the protocols of 54 patients from 1 to 39 years of age who died of renal disease. Gross atherosclerosis of the aorta was revealed in 52 and coronary atherosclerosis in 38. Coronary atherosclerosis was not found if at least mild aortic lesions were not present. Gross to moderate aortic atherosclerosis was present in 7 of the 8 who were between 1 and 9 years of age. No coronary lesions were observed in this group. In the next three decades, coronary atherosclerosis was almost as prevalent as aortic atherosclerosis. The lesions were more widespread and frequently of greater magnitude in persons in the third and fourth decades. Study of 54 random patients in the same age group not dying of renal disease revealed gross aortic atherosclerosis in 19 and gross coronary atherosclerosis in 11. The difference between the two groups is more striking in the first two decades, since atherosclerosis was present in 14 of 15 of the first group in contrast to 1 of 15 in the control group. Also the degree of lipoid infiltration in this group was less pronounced than in patients dying of renal disease. Serum cholesterol values in 30 of the 54 patients dying of renal disease exceeded 300 mg. per hundred cubic centimeters in 17. In 12 of the 17 the value exceeded 400 mg. Serum cholesterol studies carried out over two years in 18 patients with chronic glomerulonephritis revealed that hypercholesterolemia was present in all on one or more occasions. In 17 the value exceeded 400 mg. and in 10 it exceeded 600 mg.

American J. Obstetrics and Gynecology, St. Louis

44:1-182 (July) 1942. **Partial Index**

Causes of Fetal and Neonatal Mortality. D. A. D'Esopo and A. A. Marchetti, New York.—p. 1.

*Clinical Similarity of Corpus Luteum Cyst and Ectopic Pregnancy. S. L. Israel, Philadelphia.—p. 22.

Renal and Ureteral Calculi in Pregnancy, with Analysis of Twenty Cases. R. E. Arnell and P. L. Getzoff, New Orleans.—p. 34.

*Toxic Manifestations in Newborn Infant Following Placental Transmission of Sulfanilamide: Report of Two Cases Simulating Erythroblastosis Fetalis. A. M. Ginzler and C. Chesner, New York.—p. 46.

Glomerular Filtration and Renal Blood Flow in "Normal" Patients Following Toxemias of Pregnancy. L. V. Dill, C. E. Isenhour, J. F. Cadden and C. E. Robinson, New York.—p. 66.

*Routine Use of Bicycle Exercises for Prophylaxis of Postoperative Thrombophlebitis: Preliminary Report. J. M. Krebs, St. Louis.—p. 73.

Identification of Fetal Squamas and Diagnosis of Ruptured Membranes by Vaginal Smear. G. A. Bourgeois, Jersey City, N. J.—p. 80.

Comparative Local Tissue Reaction and Styptic Action of Sulfanilamide. C. T. Beecham and R. Friday, Philadelphia.—p. 88.

Macrocytic Hyperchromic Anemia of Pregnancy. M. Daniel and M. Antis, New York.—p. 93.

Use of Mercurochrome to Avoid Postoperative Catheterizations. C. G. Johnson, New Orleans.—p. 98.

Treatment of Hyperemesis Gravidarum with Intramuscular Injections of Husband's Blood. W. L. Hughes and A. C. Martin, Hempstead, N. Y.—p. 103.

Use of Estrogens in Treatment of Leukoplakia, Kraurosis and Senile Vaginitis. C. L. Buxton, New York.—p. 109.

Use of Methyl Testosterone for Relief of Breast Engorgement in Puerperium. S. Duckman and T. R. Turino, Brooklyn.—p. 112.

Relation Between Uterine Activity and Reactivity to Posterior Pituitary Extract During Pregnancy: Study of 656 Records Made with Lorand Tocograph. D. P. Murphy, Philadelphia.—p. 117.

Corpus Luteum Cyst and Ectopic Pregnancy.—Israel emphasizes the remarkable resemblance presented by a corpus luteum cyst and extrauterine pregnancy and draws attention to the fact that the mimicry may be heightened by a positive Friedman test and the finding of well developed decidua-like endometrial changes. The histories of 5 patients, each of whom had a corpus luteum cyst which was diagnosed preoperatively as an ectopic pregnancy, are cited. The histories illustrate the reasons for the diagnostic errors, including endometrial changes and a falsely positive biologic pregnancy test in 2 instances. It is suggested that if patients with a suspected adnexal tumor and a history suggesting ectopic gestation were not operated on for a few days but carefully observed, an occasional needless abdominal operation would be avoided.

Sulfonamide Toxicity in Newborn Infant.—A heretofore unreported sulfonamide toxicity, toxicity in the newborn whose mothers were treated with sulfanilamide during pregnancy, in 2 cases is reported by Ginzler and Chesner, who caution against the indiscriminate use of the sulfonamides, specifically, during pregnancy. One of the infants died of acute yellow atrophy of the liver caused by the sulfanilamide transmitted from the mother through the placenta. The infant who recovered had acute hemolytic anemia; in this infant the same mechanism seems probable. Because of the clinical and hematologic features the cases were apparently erroneously diagnosed as erythroblastosis fetalis.

Exercises in Postoperative Thrombophlebitis.—Krebs determined the incidence of postoperative thrombophlebitis among 209 patients given bicycling exercise postoperatively and 308 who were not. Of the total 517 patients, 376 had major and 141 had minor operations. None of the patients who exercised from the first postoperative day until discharge had thrombophlebitis. One of these patients, who discontinued the exercises after six days because of a postoperative infection, had the disorder. If the exercises had been continued, perhaps the phlebitis would not have developed. In contrast, thrombophlebitis developed in 5 of the 308 patients operated on during the same period of time but not having the advantage of bicycle exercises. The regimen does not unduly burden the nursing staff of any modern hospital. On the first day after operation the nurse instructs the patient in the use of the apparatus and the desired speed of motion. On subsequent days no further instruction is needed. To offset the lack of exercises on the day of operation, the foot of the bed should be elevated to aid in speeding the venous return flow from the legs.

American Journal of Physiology, Baltimore

136:543-698 (June) 1942. **Partial Index**

Activity of Pacemaker Previous to Discharge of Muscular Impulse. E. Bozler, Columbus, Ohio.—p. 543.
Activity of Descending Duodenum During Nausea. F. J. Ingelfinger and R. E. Moss, Boston.—p. 561.
Differences Among Adrenal Steroids with Respect to Their Efficacy in Protecting the Adrenalectomized Dog Against Circulatory Failure. W. W. Swingle, J. W. Remington, V. A. Drill and W. Kleinberg, Princeton, N. J.—p. 567.
Effect of Depletion of Body Potassium on Time of Survival After Nephrectomy and Ureteral Ligation. S. H. Durlacher and D. C. Darrow, New Haven, Conn.—p. 577.
Effects of Removal of Anterior Lobe of Hypophysis on Some Renal Functions. H. L. White, P. Heinbecker and Doris Rolf, St. Louis.—p. 584.
Production of Insulin Resistance in Depancreatized Dogs. J. A. Greene, Ann David and G. Johnston, Iowa City.—p. 595.
Respiration of Developing Brain. D. B. Tyler and A. van Harreveld, Pasadena, Calif.—p. 600.
Accommodation in Mammalian Motor Nerves. A. Rosenblueth and E. C. del Pozo, Boston.—p. 629.
Vasomotor Components in Vascular Reactions in Finger to Cold. A. B. Hertzman and L. W. Roth, St. Louis.—p. 669.
Reactions of Digital Artery and Minute Pad Arteries to Local Cold. A. B. Hertzman and L. W. Roth, St. Louis.—p. 680.
Absence of Vasoconstrictor Reflexes in Forehead Circulation: Effects of Cold. A. B. Hertzman and L. W. Roth, St. Louis.—p. 692.

American Journal of Psychiatry, New York

98:791-934 (May) 1942

Organization of Psychiatry for the Emergency. H. A. Steckel, Syracuse, N. Y.—p. 791.
Army Psychiatric Literature: Factors in Interpretation. D. J. Flicker, Camp Blanding, Fla.—p. 795.
Prognosis in Manic-Depressive Psychoses. T. A. C. Rennie, New York, with help of J. B. Fowler.—p. 801.
Hypochondriac Complaints, with Special Reference to Personality and Environment. S. Katzenelbogen, Washington, D. C.—p. 815.
*Relationship of Vitamin C Deficiency to Dental and Gingival Conditions in Mental Patients. H. S. Barahal and M. G. Priestman, Long Island, N. Y.—p. 823.
Observations on Mental Patients After Electro Shock. H. Lowenbach and E. J. Stainbrook, Durham, N. C.—p. 828.
The Feebleminded Motorist. L. S. Selling, Detroit.—p. 834.
The Institutional Psychotic Epileptic. J. A. Gottschalk, Chicago.—p. 839.
Folie à Deux: Report of Case in Identical Twins. J. G. Oatman, Fort Bragg, N. C.—p. 842.
Treatment of Chronic Alcoholism. W. A. Thompson, Orangeburg, N. Y.—p. 846.
Postural Reactions to Vestibular Stimulation in Schizophrenic and Normal Subjects. A. Angyal and M. A. Sherman, Worcester, Mass.—p. 857.
Blood Sugar During and After Hypoglycemic Coma of Insulin Shock Therapy, with Special Reference to "Aftershock." M. Heiman, Mount Pleasant, Iowa.—p. 863.
Gardner Behavior Chart. P. H. Wilcox, Traverse City, Mich.—p. 874.
Recurrent Convulsive Seizures in Animals Produced by Immunologic and Chemical Means. Lenore Moolten Kopeloff, S. E. Barrera and N. Kopeloff, New York.—p. 881.

Vitamin C Deficiency and Dental Conditions in Mental Patients.—Barahal and Priestman made quantitative determinations of the vitamin C levels of mental patients and found that they were considerably lower than in normal control subjects. The low levels were at least partially traced to the low vitamin C allowance in most institutional diets, but undoubtedly the unusual food habits of mental patients, depending on their delusions regarding food, played a part. There was a definite correlation between the frequency of dental and gingival conditions in mental patients and their low levels of vitamin C. There were no significant differences in the various diagnostic groups (old residents and newly admitted patients whose diets were or were not supplemented by "outside" food) except that patients with alcoholic psychosis had the lowest levels. Hospital diets should be supplemented by an adequate supply of vitamin C.

Annals of Surgery, Philadelphia

116:1-160 (July) 1942

Invasion of Bony Pelvis by Carcinoma of Cervix Uteri as Cause of Pathologic Central Dislocation of Hip. J. R. Elder and N. M. Matheson, London, England.—p. 1.
Urologic Complications of Cancer of Rectum. T. F. Mullen and P. Lestrohan, San Francisco.—p. 6.
*Paget's Disease of Nipple. J. P. West and W. F. Nickel Jr., New York.—p. 19.
Hemangiopericytoma: Vascular Tumor Featuring Zimmermann's Pericytes. A. P. Stout and Margaret R. Murray, New York.—p. 26.
*Pathogenesis of Mixed Tumors of Salivary Gland Type. L. H. Hemplemann Jr. and N. A. Womack, St. Louis.—p. 34.
*Adenolymphoma of Parotid Gland. J. A. Plaut, New Haven, Conn.—p. 43.
*Adrenalin Producing Pheochromocytoma of Adrenal Associated with Hypertension: Report of Three Cases. J. D. Kirshbaum and Ruth B. Balkin, Chicago.—p. 54.
*Pheochromocytoma with Hypermetabolism: Report of Two Cases. E. P. McCullagh and W. J. Engel, Cleveland.—p. 61.
Sacrococcygeal Teratoid Tumor: Case Report. G. T. Pack and R. Braund, New York.—p. 76.
Malignant Degeneration of Neurofibromas of Peripheral Nerve Trunks (von Recklinghausen's Disease). K. Speed, Chicago.—p. 81.
Cancer of Cervical Esophagus. W. L. Watson, New York.—p. 86.
Cysts of Spleen. R. D. McClure, Detroit, and W. A. Altemeier, Cincinnati.—p. 98.
Hemorrhagic Cyst of Spleen. E. V. Denneen, New York.—p. 103.
Urinary Extravasation (Periurethral Phlegmon): Clinical Study of Thirty-Two Cases. E. O. Finestone, New York.—p. 109.
Effect of Heparin on Phagocytosis by Cells of Reticuloendothelial System. R. H. Rigdon and F. S. Schrantz, Memphis, Tenn.—p. 122.
Cardiocirculatory Dynamics in Surgical Shock. R. L. Riley, R. H. Wylie and F. B. Berry, New York.—p. 127.

Paget's Disease of Nipple.—The records of 20 cases of Paget's disease of the nipple treated over approximately twenty-three years are reviewed by West and Nickel. The diagnosis was based on the presence of an eczema or excoriation of the nipple which, on histologic section, showed epithelial hypertrophy, subepithelial round cell infiltration and Paget's cells. The cases were readily divided into two clinical groups: 1. All but 2 of the 13 patients in this group were more than 50 years of age and the chief complaint of each was eczema of the nipple, usually of long duration. In only 3 was the lesion of the nipple present for less than one year. Section of the breasts, after removal, revealed a definite tumor in 8, 3 of whom had axillary metastasis. Of the 3 patients with axillary metastasis, 1 died six months and 1 four years after operation; 1, operated on only a year ago, is alive and well without evidence of recurrence. The other 10 patients are alive and well, 2 for more than fifteen years, 1 for ten years, 1 for nine years, 3 for three years, and 3 were operated on within the last year. This group of 13 cases emphasizes the close relationship between chronic lesions of the nipple and carcinoma of the breast and suggests that carcinoma of nipple origin is slow to metastasize and therefore forms a favorable group for proper treatment. All lesions of the nipple which do not quickly respond to simple treatment should be subjected to a biopsy and, if the diagnosis is Paget's disease, a radical mastectomy should be performed. 2. The 7 patients in this group were aware of a tumor of the breast at the time they sought medical advice, and only 2 complained of an associated eczema of the nipple. The lesions of the nipple were so inconspicuous that the clinical diagnosis of Paget's disease was not made in any of them. Microscopic study of the nipples revealed changes similar to those of the first group. Four of the patients are known to have died of their carcinoma within three years of operation, 1 has been alive for one year but has a local recurrence, and the result in 2 is not known.

Mixed Tumors of Parotid Gland.—As experimental disturbance of tissue environment of the embryo has caused structural malformation, it is possible that some such disturbances may lead to the development of mixed tumors of the parotid gland. The time during embryonic life that such a disturbance occurs, as suggested by Li and Yang, would account for the degree of differentiation which the tissues show. Those occurring earlier in life have the greater potentialities of differentiation. This interrelationship of tissues, Hemplemann and Womack point out, has been almost completely ignored in the case of mixed tumors of the salivary gland type but has been used to explain the development of teratomas. This utilization of the "organizer" conception regards the tumors as a result of primary epithelial maldevelopment, with mesodermal differentiation secondary to this epithelial disturbance. The application of this theory to mixed tumors of the salivary glands has not yet been subjected to experimental proof, but it seems to the authors to be the most rational and is thoroughly in keeping with present day embryologic tenets.

Adenolymphoma of Parotid Gland.—Plaut discusses the clinical aspects of adenolymphoma of the parotid gland as revealed in 48 previously reported cases and 16 as yet unreported instances. The tumor occurs at all ages, but predominantly in the fifth, sixth and seventh decades. Its life history is that of a slow growing and relatively asymptomatic tumor. It occurred five times as often in men as in women. Surgical excision was the treatment of choice. Since the capsule is not always complete, the tumor should be meticulously dissected out rather than enucleated. When completely excised it rarely recurs. Histologically it is benign. Added to the 64 cases are 3 others which, although their microscopic picture is slightly different, undoubtedly belong to the same group of neoplasms. Clinically they behave in an identical manner. Like the usual adenolymphoma they contain a matrix of lymphoid tissue, diffuse lymphocytic infiltration, aggregates resembling germinal centers, large cells which resemble epithelioid cells, small cysts lined with low cylindric cells with vesicular nuclei, small cuboidal irregularly spaced cells and other single and strands of epithelial cells. Neisse, who studied the parotid ducts and acini within the surrounding lymph nodes in fetuses and newborn infants, felt that the parotid tissue became included in the lymph nodes as a result of the growth and development of the nodes from small patches of lymphocytes which had previously surrounded the parotid tissue. He found undeveloped parotid structures directly adjacent to lymphocytic tissue in 9 cm. fetuses and lying within the nodes themselves in fetuses measuring 12 cm. and larger. The observations of Bunting and Tennant on 2 premature and 5 full term, stillborn infants concurred. In most instances these glandular structures were situated in the hilar regions of the nodes. From the similarity of the structure of the 3 tumors reported by the authors to that of this common finding in newborn infants, it seems probable to them that such tumors have arisen from the subsequent growth of such parotid tubules and acini as have been included within lymph nodes.

Pheochromocytoma of Adrenal.—Kirshbaum and Balkin report 3 cases of epinephrine producing pheochromocytoma of the adrenal from a series of 14,437 consecutive necropsies performed at the Cook County Hospital from 1929 to March 1941 inclusive. Operations were performed in 18 of the 116 cases reported to date, and there was a definite permanent drop in blood pressure in those in which survival occurred. The presence of an increased amount of epinephrine in the blood was demonstrated during an attack of 1 of the 13 in which biologic assays were performed. The epinephrine content of the tumors examined varied from 1 to 40 mg. per gram of tumor tissue. One of the authors' specimens contained 4.15 mg. of epinephrine per gram of tissue. Usually pheochromocytoma is diagnosed in necropsy material, and it is only since 1929, following the report of Rabin, that clinicians have made the diagnosis during life. The clinical diagnosis is usually made on the basis of paroxysmal hypertension accompanied by glycosuria, vasomotor pallor followed by flushing, headache, nausea, vomiting, dyspnea, a feeling of suffocation, pulmonary edema and great susceptibility to surgical shock. There have been patients with paroxysmal hypertension who have been operated on with the diagnosis of pheochromocytoma of the adrenal but in whom no tumor was found. Recently Kirshbaum saw a woman patient of 38 who was operated on for a suspected pheochromocytoma, but examination of the surgically removed tumor revealed a cyst of the adrenal which, when assayed, contained no epinephrine. Removal of the tumor has produced no fall in blood pressure.

Pheochromocytoma with Hypermetabolism.—Two cases of pheochromocytoma of the adrenal gland with hypermetabolism are presented by McCullagh and Engel, who state that in 1 a severe diabetes mellitus existed, together with an extreme polyuria, amounting to as much as 16,800 cc. daily. The correct diagnosis was made preoperatively in 1. This was aided by clinical data but without the aid of demonstrating the tumor. In this case operative removal of the tumor has led to a complete cure. Following operation this patient presented an unusual complaint of intolerance to cold. If a cold breeze struck her she would shake perceptibly, and on one occasion the shivering continued for most of an hour. This has gradually improved until, eight months postoperatively, it is scarcely noticeable. The apparent explanation for this is that she required considerable time to recover from vasomotor and pilomotor instability. The hypermetabolism was a striking feature in both cases. It is probable that hyperthyroidism was not present in either case, and in 1 the hypermetabolism disappeared postoperatively. The diagnostic importance of a high urea clearance is stressed.

Archives of Pathology, Chicago

34:1-318 (July) 1942. **Partial Index**

Inquiry into Certain Aspects of Eugene L. Opie. P. Rous, New York.—p. 1.
Suprasellar Tumors Related to Pars Intermedia of Hypophysis. W. G. MacCallum, Baltimore.—p. 13.
*Relationship of Coccidioidomycosis to Calcified Pulmonary Nodules. J. D. Aronson, Philadelphia; R. M. Saylor and Erma I. Parr, Washington, D. C.—p. 31.
Standardization of Tuberculin with Aid of Guinea Pigs Sensitized by Killed Tubercle Bacilli in Liquid Petrolatum. J. Freund, Otisville, N. Y., and R. Y. Gottschall, Lansing, Mich.—p. 73.
Studies of Amyloid: II. Isolation of Polysaccharide from Amyloid-Bearing Tissues. G. Hass, New York.—p. 92.
Use of Supravital Staining Technic in Study of Tumors of Lymphosarcoma Group. C. H. Hu and H. C. Pai, Peiping, China.—p. 106.
The Spleen in the Leukemias. E. B. Krumbhaar and A. Stengel, Philadelphia.—p. 117.
Biochemical Factors in Inflammation and Diabetes Mellitus. V. Menkin, Boston.—p. 182.
Fibrosarcoma of Arachnoidal Origin with Metastases: Report of Four Cases with Necropsy. W. O. Russell and E. Sachs, St. Louis.—p. 240.
Nucleoprotein Antigen of Vaccine Virus: I. New Antigen from Elementary Bodies of Vaccinia. J. E. Smadel, T. M. Rivers and C. L. Hoagland, New York.—p. 275.
Encephalomalacia with Cavity Formation in Infants. L. D. Stevenson and Lillian E. McGowan, New York.—p. 286.
Developmental Abnormalities of Lung and Bronchiogenic Carcinoma. N. A. Womack and E. A. Graham, St. Louis.—p. 301.

Coccidioidomycosis and Calcified Pulmonary Nodules.—According to Aronson and his co-workers, in the course of studies dealing with tuberculosis among some of the Indians of the United States and Alaska, roentgen study of the chests of 3,024 children and young adults from 1 to 19 years who failed to react to the intracutaneous injection of 0.00002 and 0.005 mg. of purified protein derivative of tuberculin revealed calcified pulmonary nodules. Among 704 children living on the Pima Agency, near Phoenix, Ariz., who did not react to tuberculin, calcified pulmonary nodules were observed in 102; among 419 Shoshone and Arapaho children living on the Wind River Agency, Wyo., only 1 of those who failed to react to tuberculin had a calcified pulmonary nodule; among 332 Chippewa children living on the Turtle Mountain Agency who did not react to tuberculin 15 had calcified pulmonary nodules, and among the 592 Sioux children of the Rosebud Agency and the 977 Indian children living in southeastern Alaska who failed to react to tuberculin 6 and 2 presented calcified pulmonary nodules. Because of the high incidence of calcified pulmonary nodules in "tuberculin negative" children living on the Pima Agency the possibility that the nodules were coccidioidal was investigated. A large percentage of children of school age living on the Pima, San Carlos and Sells agencies and a small percentage of those living on the Fort Apache Agency (respectively 83.6, 92, 94.2 and 14.9 per cent) reacted to the injection of 0.1 cc. of a 1:1,000

or of a 1:100 dilution of coccidioidin, while in other areas of the United States and Alaska but few (from zero to 5.9 per cent) reacted to these amounts or to the injection of a 1:10 dilution of coccidioidin. Some of the children living on the Fort Apache Agency who reacted to coccidioidin had attended school at the Pima Agency for several years, while others had visited or lived on the San Carlos Agency. That there was no relation between the coccidioidin and the tuberculin reaction was deduced from the fact that of 285 Alaskan Indians tested simultaneously with purified protein derivative of tuberculin and coccidioidin 96 per cent showed reactions to tuberculin, with severe reactions occurring in many, and no reactions to coccidioidin and only 3 reacted to 0.1 cc. of a 1:10 dilution of coccidioidin. Failure to react to tuberculin in those showing calcified nodules cannot be attributed to anergy, since in 56 of 62 such persons the tuberculin reaction became positive one year after the intracutaneous injection of BCG vaccine. The data suggest that the nodules may be due to pulmonary infection with Coccidioides immitis.

Bulletin of Los Angeles Neurological Society

7:49-106 (June) 1942

Nature of Emotion. S. D. Ingham, Los Angeles.—p. 49.
Structural Changes in Brain Consequent to Traumatic Disturbances of Intracranial Fluid Balance. C. B. Courville, Los Angeles.—p. 55.
Fundamental Principles of Aphasia Based on Autopsy Material of Crucial Cases. J. M. Nielsen and A. P. Friedman, Los Angeles.—p. 77.
Electro Shock Therapy: Its Technic and Application. B. Stewart, Compton, Calif.—p. 88.
Familial Disease with Extrapyramidal Symptoms: Report of Two Cases. K. O. Von Hagen and A. P. Friedman, Los Angeles.—p. 95.
*Insulin Shock Therapy: Prevention of Secondary Hypoglycemic Shock. C. W. Olsen, Los Angeles.—p. 99.

Insulin Shock Therapy.—Olsen has employed with success two new procedures in avoiding secondary hypoglycemic shock, especially in the struggling patient, due to irregular absorption of insulin, vomiting, refusal to take food or unknown factors. They are the intravenous injection of insulin to induce shock and the substitution of starch for sugar at the termination of the shock. The intravenous injection of insulin would be wasteful in routine diabetic practice because of its curtailed period of effect, but it is of real advantage in the treatment of psychosis where a limited period of action is desirable. To terminate the shock the dextrose injected intravenously is followed by the ingestion of a pint of thick potato soup, cooked cereal or any purée of dried bean, pea or lentil. The author gives about 100 cc. of a 25 per cent solution of dextrose at one intravenous injection and a pint of starchy material within ten or fifteen minutes of the patient's awakening. Secondary shocks may still occur.

Canadian Medical Association Journal, Montreal

47:1-94 (July) 1942

*Further Experience with Sulfathiazole Emulsion. D. Ackman and G. Wilson, Montreal.—p. 1.
Use of Sulfathiazole with Primary Mastoid Wound Closure. F. W. Shaver, Montreal.—p. 7.
Sex Hormones in Obstetrics and Gynecology. M. M. Cantor, J. R. Vant, L. C. Conn and M. J. Huston, Edmonton, Alta.—p. 12.
*Pathogenesis of Chronic Atrophic Pyelonephritis and Its Possible Relation to Production of Hypertension. H. E. Taylor, Halifax, N. S.—p. 24.
Contact Dermatitis of Feet. J. F. Burgess, Montreal.—p. 27.
*Suppurative Parotitis. N. A. McCormick, Windsor, Ont.—p. 29.
Duplication of Uterus and Vagina. G. E. Perrigard, Montreal.—p. 33.
Infectious Mononucleosis with Acute Thrombopenic Purpura. W. Magner and E. F. Brooks, Toronto.—p. 35.
Fatigue, Rest and Exercise. T. Owen, Toronto.—p. 41.
Physiology of Spinal Anesthesia. H. J. Shields, Toronto.—p. 45.
Use of Synthetic Vitamin K Substitutes in Treatment of Prothrombin Deficiency. S. R. Townsend and E. S. Mills, Montreal.—p. 48.
Influence of Menstruation on Carbohydrate Tolerance in Diabetes Mellitus. H. I. Cramer, Montreal.—p. 51.
*Relationship of Degeneration of Thyroid to Premature Aging. F. J. Hogg, Hamilton, Ont.—p. 56.
Cholesterol and the Heart: Its Effect on Activity of Heart of Frog and Turtle. J. Ferguson, Edmonton, Alta.—p. 60.

Sulfathiazole Emulsion.—Ackman and Wilson have treated hundreds of cases of abscesses, carbuncles, furuncles and burns with an oil in water emulsion of sulfathiazole. The emulsion introduces a new method for the topical use of the sulfonamides in an old and well established "curtain drainage" medium. The emulsion is made up of 5 per cent of finely powdered sulfathiazole, 2 per cent of triethanolamine, 24 per cent of water, 5 per cent of beeswax and 64 per cent of liquid petrolatum. The treatment is recommended for all burns on critical areas. For burned surfaces, single layers of emulsion impregnated strips of finely meshed sterile gauze are applied. Over the strips ordinary gauze dressings thoroughly impregnated with the emulsion are applied. In early stages particularly they are reinforced with dry absorbent material with or without a pressure bandage. This type of dressing and splint results in a minimal decrease of serum. The first redressing is decided by whether much serum is lost or whether further cleansing is desirable. Because the staphylococcus is a frequent invader it is advisable to make five days the time limit for changing dressings in deep second and third degree burns. The dressing has an immediate and continued local anesthetic effect. This decreases shock and minimizes the necessity for sedatives. The dressings are comfortable, soft and pliable, and they do not appreciably restrict movement. The emulsion dressing has been applied directly over Reverdin and Thiersch grafts, all of which have thrived. There has been little exudate, no infection and no odor. This is evidence against any local tissue toxicity from sulfathiazole. The use of the emulsion as a burn dressing does not replace tannic acid or other eschar protective coverings necessary to prevent serum loss in large surface burns on the torso. However, on critical areas where the prevention of contractures is of utmost importance and disability precludes the use of an eschar the dressings are indicated, as they do not inhibit movement, are relatively painless and may be readily changed with minimal bleeding. The healing of burns is hastened by bacteriostasis, separation of the necrotic surface is accelerated by the softening effect, granulation tissue is stimulated and thus recovery is hastened.

Pathogenesis of Chronic Atrophic Pyelonephritis.—Taylor reports 3 cases in which the essential lesion was the destruction of large numbers of glomeruli by a fibrotic process originating from an ascending infection in the tubules leading to a periglomerular fibrosis, complete obliteration of the vascular tufts and a varying degree of arteriosclerosis and arteriolar sclerosis. Such a reaction must lead to renal ischemia, so that it may be assumed that renin is released and angiotonin, with the production of hypertension in a manner similar to that obtained in experimental hypertension, is formed subsequently. Therefore it is suggested that, to have hypertension associated with chronic atrophic pyelonephritis, sufficient vascular damage due to progressive glomerular fibrosis or pronounced arteriosclerosis must be present to upset the "inhibitor-angiotonin" balance. Such arteriosclerosis might be present in one kidney without an associated hypertension, because then the inhibitor substance present in the normal kidney counteracts the action of the angiotonin released by the diseased ischemic kidney. However, if the other kidney is sufficiently diseased to decrease the inhibitor substance, the pressor substance can act unhindered and consequently hypertension results. The same pathologic process, with a different etiologic basis, may explain the persistent hypertension in chronic glomerulonephritis, in which there is also a progressive fibrosis of the glomeruli.

Suppurative Parotitis.—McCormick employed 200 kilovolt roentgen therapy in the treatment of 19 cases of parotitis (with bilateral involvement in 6) and 1 case of bilateral submaxillary adenitis. Sixteen cases followed an operation. Five of the operations involved the pelvic organs or large intestine. Treatment of the condition is an emergency. The involved area was irradiated with 150 to 200 roentgens at a skin target distance of 50 cm., through a port of usually 10 by 15 cm. and filtered by 0.5 mm. of copper and 3 mm. of aluminum or 1 mm. of copper and 4 mm. of aluminum. The same treatment is given on each succeeding day until adequate improvement results. Usually pain is relieved almost immediately and the temperature falls. The gland may not show any objective change until the second day, when it rapidly resolves. Treatment within six hours of onset gives most satisfactory results. Within seven to sixteen hours resolution will occur in many cases; after sixteen or more hours patients should also be irradiated, as they may yet obtain a satisfactory resolution; but, if not, suppuration takes place more quickly and clears up sooner than in

nonirradiated patients and there is considerable relief from pain. Surgical intervention should be delayed. It consists of a simple incision. Irradiation reduces the morbidity and high mortality of the disease. Four of the 20 patients died.

Thyroid Degeneration and Premature Aging.—Hogg carried out experiments in white mice to confirm the observation of McGregor on premature aging of patients who are the subject of cystic degeneration of the thyroid, especially when the cyst replaces existing fetal adenoma. Fluid obtained from thyroid cysts (degenerative or fetal) in a dose of 0.6 cc. was extremely toxic to mice, causing death in a few hours. It could be injected in smaller doses with safety. Animals so treated became sensitized to the material. Injection after a period of rest caused rapid death by what appears to be an anaphylactic reaction. Intraperitoneal injection of all different types of thyroid cystic material caused complete thymic atrophy. Of the animals treated with cystic thyroid material, 65 per cent showed hair changes; the fur became sparse and coarse. This is a recognized sign of age in mice. No control animal showed these changes. The treated mice did not lose weight but did lose sexual activity. Intraperitoneal injection of suspensions of thyroid extract in distilled water was not followed by any evidence of organic changes.

Canadian Public Health Journal, Toronto

33:241-314 (June) 1942

Poliomyelitis and Encephalitis, Manitoba, 1941: Introduction. F. W. Jackson, Winnipeg, Man.—p. 242.
Some Epidemiologic Features of Poliomyelitis and Encephalitis, Manitoba, 1941. C. R. Donovan and M. Bowman, Winnipeg, Man. —p. 246.
Note on Prevalence of Encephalomyelitis in Manitoba Horses Prior to 1941. A. Savage, Winnipeg, Man.—p. 258.
Clinical Study of Acute Poliomyelitis, Manitoba, 1941. J. D. Adamson, Winnipeg, Man., and Sara Dubo, St. Boniface, Man.—p. 259.
Kenny Method of Treatment: Newer Knowledge of Pathology of Poliomyelitis. B. Chown, Winnipeg, Man.—p. 276.
Id.: Treatment of Poliomyelitis in Acute Stage. A. E. Deacon, Winnipeg, Man.—p. 278.
Id.: Nursing Procedure. Dorothy I. Ditchfield and Ethel M. Hyndman, Winnipeg, Man.—p. 282.
Id.: Physiotherapy in Treatment of Infantile Paralysis; Kenny Method. Helen H. Ross, Winnipeg, Man.—p. 285.
Id.: Some Observations on Diet of Patients with Poliomyelitis. M. Cowan, Winnipeg, Man.—p. 286.
Convalescent Serum in Poliomyelitis. F. Cadham, Winnipeg, Man.—p. 287.
Clinical Findings in Encephalitis (Western Equine). J. D. Adamson, Winnipeg, Man., and Sara Dubo, St. Boniface, Man.—p. 288.
Pathology of Western Equine Encephalomyelitis: Eighteen Human Cases, Manitoba Epidemic, 1941. T. L. Quong, Winnipeg, Man.—p. 300.
Western Equine Encephalomyelitis in Infants. H. Medovy, Winnipeg, Man.—p. 307.

Cancer Research, Baltimore

2:453-524 (July) 1942

Effect of Yeast Feeding on Experimentally Produced Liver Cancer and Cirrhosis. K. Sugiura and C. P. Rhoads, New York.—p. 453.
Genesis and Growth of Tumors: II. Effects of Caloric Restriction per se. A. Tannenbaum, Chicago.—p. 460.
Id.: III. Effects of High Fat Diet. A. Tannenbaum, Chicago.—p. 468.
Persistence and Growth of Spontaneous Mammary Tumors and Hyperplastic Nodules in Hypophysectomized Mice. W. U. Gardner, New Haven, Conn.—p. 476.
Constancy Under Varying Conditions of Transplanted Mammary Carcinoma in Inbred Rats. M. J. Eisen, New York.—p. 489.
Isotopic Constitution of Potassium in Normal Tissue and Cancer from Human Subjects. A. Lasnitzki and A. K. Brewer, Washington, D. C. —p. 494.
Acid and Alkaline Glycerophosphatase in Tissue and Serum. Helen Quincy Woodard, New York.—p. 497.
*Utilization of Vitamin C by Cancer Patients. A. H. Minor and M. A. Ramirez, New York.—p. 509.
Studies of Transmissible Agent of Chicken Sarcoma I: Isolation of Virus from Basic Protein Virus Complex. D. Shemin and E. E. Sproul, New York.—p. 514.
Some Cytologic Effects of Repeated Doses of Radiation on Mouse Sarcoma 180. L. C. Fogg and S. Warren, Boston.—p. 517.

Utilization of Vitamin C by Cancer Patients.—Minor and Ramirez estimated the amount of vitamin C that 7 control subjects, 1 patient with a localized cancer and 5 with metastatic cancer utilized; the respective averages were 67, 68 and 125 mg. The subjects were given a diet free of fruit and vegetables, and as there is no evidence of an endogenous supply in man their daily supply comprised the 500 mg. given parenterally and the estimated 10 mg. in the diet. The daily utilization was calculated as 500 mg. less the twenty-four hour urinary excretion. A possible explanation for the increased utilization of vitamin C by patients with metastatic cancer is apparent if the presence of an active carcinogen in such patients is postulated and that an interference with cellular respiration by this agent might cause a compensatory accumulation of ascorbic acid in the affected tissues and thus diminish the excretion of vitamin C.

Connecticut State Medical Journal, Hartford

6:489-580 (July) 1942

Medical Care and Its Distribution. M. M. Davis, New York.—p. 496.
Medicine and the Hospital. J. A. Hamilton, New Haven.—p. 502.
Medicine and Public Opinion. T. A. Hendricks.—p. 508.
Problems of Emergency Practice: Introduction. S. C. Harvey, New Haven.—p. 512.
Organization and Function of Emergency Medical Service in Connecticut. W. J. German, New Haven, and G. M. Smith.—p. 514.
Mental Casualties. R. Goldstein, New Haven.—p. 522.

Florida Medical Association Journal, Jacksonville

28:573-616 (June) 1942

Fractures of Tibia. C. B. Mabry, Jacksonville.—p. 583.
Digitalis Poisoning. E. C. Chamberlain, Fort Lauderdale.—p. 586.
Hyperthyroidism. S. G. Kennedy, Pensacola.—p. 588.
Opportunities for Special Work in Student Pilot Training, with Special Reference to Air Sickness. R. C. Cumming, Lakeland.—p. 594.

Journal of Clinical Endocrinology, Springfield, Ill.

2:351-420 (June) 1942

*Testosterone Therapy of Male Eunuchoids: III. Sublingual Administration of Testosterone Compounds. H. Lisser, R. F. Escamilla and L. E. Curtis, San Francisco.—p. 351.
Appraisal of Estrogenic Activity by Vaginal Glycogen Index: Comparison of Oral and Parenteral Estrone. H. C. Mack and T. Ale, Detroit. —p. 361.
Glycogen Studies on Human Endometrium: Correlation of Quantitative Chemical Estimation and Qualitative Demonstration by Histologic Methods. M. A. Spyker and R. S. Fidler, Columbus, Ohio.—p. 367.
Effects of Contraphysiologically Administered Diethylstilbestrol on Menstrual Cycle. E. C. Hamblen, W. K. Cuyler, D. V. Hirst and V. O. Horner, Durham, N. C.—p. 369.
Effects of Desoxycorticosterone Acetate on 17-Ketosteroid and Pregnandiol Excretions. W. K. Cuyler, D. V. Hirst, Josephine M. Powers and E. C. Hamblen, Durham, N. C.—p. 373.
*Progesterone Therapy and Progestin Metabolism in Abortion. C. D. Davis, E. C. Hamblen, W. K. Cuyler and Margaret Baptist, Durham, N. C.—p. 377.
Treatment of Prepuberal Vulvovaginitis with Diethylstilbestrol. J. D. Russ, C. G. Collins and S. Powell, New Orleans.—p. 383.
Clinical Evaluation of Adjunctive Therapy with Stilbestrol Monomethyl Ether with Comments on Toxicity. A. R. Abarbanel, New York.—p. 386.
Effect of Inunction of Alpha Estradiol and of Oral Medication with Pregneninolone on Postmenopausal Human Uterus. H. W. Weber, L. Kurzrok and C. H. Birnberg, Brooklyn.—p. 392.
Simmond's Disease: Report of Two Cases Caused by Intracranial Tumors. R. E. Moss, Boston.—p. 395.
Acromegalic Gigantism Without Cardiac Enlargement: Report of Case. G. Levene and Lois C. Miller, Boston.—p. 403.
Observations on Antagonistic Effects of Posterior Pituitary and Corticoadrenal Hormones in Epileptic Subject. I. McQuarrie, J. A. Anderson and M. R. Ziegler, Minneapolis.—p. 406.
Addisonian Crisis Complicated by Relative Hypertension, Edema and Acute Streptococcus Hemolyticus Infection of Throat. L. J. Soffer and G. Lesnick, New York.—p. 412.
Prevention of Diabetes Mellitus. B. A. Watson, Minneapolis.—p. 414.

Testosterone Therapy of Male Eunuchoids.—According to Lisser and his associates, 5 typical eunuchoids whose improvement was previously successfully maintained by parenteral, implantation and/or oral administration of testosterone continued in their improved status on testosterone sublingually. In only 1 of the 5 was less testosterone required sublingually than orally. The patients preferred swallowing tablets to dropping a solution under the tongue. Four hypogonadal patients with no previous testosterone therapy were subjectively and objectively benefited from the sublingual administration of testosterone compounds. Larger doses of methyl testosterone would have been required orally to accomplish equivalent results. Sublingually, free testosterone was more effective than methyl testosterone or testosterone propionate. The androgen to be used was dissolved in propylene glycol so that 0.2 cc. contained 5 mg. of the testosterone compound.

Progesterone Therapy and Progestin Metabolism in Abortion.—Progesterone was used by Davis and his co-workers in an attempt to bring the pregnancy of 54 patients to viability. Of the patients 16 had histories of two or more previous spontaneous abortion, 30 had vaginal bleeding during the first twenty-eight weeks of pregnancy, with or without the accompaniment of pain, and in 8 abortion was prognosticated. Pregnancy was maintained respectively in 50, 57 and 75 per cent of the women. Thyroid substance was an important therapeutic adjunct. Anhydrohydroxyprogesterone orally was apparently as efficient as injected progesterone. The sodium pregnandiol glucuronide excretion of 14 patients was studied and 6 of the 7 who excreted normal amounts went to term, 4 with initially and continuously low levels aborted or miscarried and 3 who had normal levels followed suddenly by zero or near zero values aborted or miscarried within a few days of the drop.

Journal of Clinical Investigation, New York

21:369-510 (July) 1942

*Reduction of Blood Pressure Associated with Pyrogenic Reaction in Hypertensive Subjects. H. Chasis, W. Goldring and H. W. Smith, New York.—p. 369.
*Relation Between Dark Adaptation and Level of Vitamin A in Blood. C. Haig and A. J. Patek Jr., New York.—p. 377.
Cirrhosis of Liver Among Rats Receiving Diets Poor in Protein and Rich in Fat. G. T. Webster, Cleveland.—p. 385.
Occurrence of Dyspnea, Dizziness and Precordial Distress Occasioned by Pooling of Blood in Varicose Veins. E. M. Chapman and E. Asmussen, Boston.—p. 393.
Tissue Thiamine Concentrations and Urinary Thiamine Excretion. J. W. Ferrebee, N. Weissman, Boston; D. Parker and P. S. Owen, New York.—p. 401.
*Effect of Exercise and of Four Commonly Used Drugs on Normal Human Electrocardiogram, with Particular Reference to T Wave Changes. A. S. Hartwell, J. B. Burrett, A. Graybiel and P. D. White, Boston.—p. 409.
Absence of Beneficial Effects from Injections of Desoxycorticosterone Acetate and of Cortical Adrenal Extract in Experimental Anuria. A. W. Winkler, P. K. Smith and H. E. Hoff, New Haven, Conn. —p. 419.
Protective Activity of Normal Human and Animal Serums for Sulfapyridine Treated Mice Infected with Pneumococci. Sophie Spicer, New York.—p. 423.
Effects of Barbiturate Anesthesia (Evipal and Pentothal Sodium) on Integration of Respiratory Control Mechanisms: Study Directed Toward Improvement of Methods for Preclinical Evaluation of Anesthetic Agents. C. A. Moyer and H. K. Beecher, Boston.—p. 429.
Anticoagulant Effects in Rabbits and Man of Intravenous Injection of Salts of Rare Earths. S. B. Beaser, A. Segel and L. Vandam, Boston.—p. 447.
Comparison of Pituitrin with Antidiuretic Substance Found in Human Urine and Placenta. G. C. Ham and E. M. Landis, Charlottesville, Va.—p. 455.
Studies with Radioactive Diazo Dyes: I. Localization of Radioactive Dibrom Trypan Blue in Inflammatory Lesions. F. D. Moore and L. H. Tobin, Boston.—p. 471.
*Serum Antistreptolysin Titer in Chronic Glomerulonephritis. D. P. Earle Jr., Emily N. Loeb, D. Seegal, J. D. Lyttle and Elizabeth L. Jost, New York.—p. 483.
Relation of Serum Antistreptolysin Titer to Exacerbation in Chronic Glomerulonephritis. D. P. Earle Jr., D. Seegal, J. D. Lyttle, Emily N. Loeb and Elizabeth L. Jost, New York.—p. 491.
Urea Clearance of Young Premature and Full Term Infants. H. H. Gordon, H. E. Harrison and Helen McNamara, New York.—p. 499.
Intubation Studies of Human Small Intestine: XXII. Improved Technic for Study of Absorption: Its Application to Ascorbic Acid. J. T. L. Nicholson and F. W. Chornock, Philadelphia.—p. 505.

Reduced Blood Pressure and Pyrogenic Reaction in Hypertension.—With the theory in mind that renal ischemia is the primary causal factor of hypertension and that repeated renal hyperemia might have a favorable effect on the hypertension, Chasis and his associates repeatedly administered pyrogenic inulin, triple typhoid vaccine and tyrosinase by intravenous injection to 8 subjects with essential hypertension and 1 with chronic diffuse glomerulonephritis. The blood pressure was reduced significantly and maintained at reduced levels by repeated injections of the material. The hypotensive effect can be obtained without a rise in body temperature by premedication with aminopyrine. The mechanism responsible for the persistently reduced blood pressure is unknown, but from the more immediate effects of pyrogen it appears to be due in part to an adverse or asthenic action on the cardiovascular system rather than to the correction of the fundamental disturbance underlying the hypertension. Any pyrogenic material should be administered cautiously, since an alarming degree of peripheral circulatory failure may follow. One of the patients had this experience.

Dark Adaptation and Vitamin A in Blood.—The relation between dark adaptation, the plasma level of vitamin A and the plasma carotenoids was investigated by Haig and Patek in normal persons and in patients with hepatic cirrhosis. There appeared to be no sex difference in the dark adaptation of 37 normal subjects, but in determinations of the plasma vitamin A and total carotenoid levels in 44 normal persons the mean vitamin A level for women was 14 per cent lower than that for men, while the mean carotenoid levels were the same in the two sexes. Sixty-seven simultaneous dark adaptation tests and plasma vitamin A and carotenoid measurements were obtained in 14 normal persons, 18 persons with cirrhosis of the liver and 7 persons with various other chronic diseases. If the cirrhotic and normal groups are considered separately, no significant correlations were observed between the plasma vitamin A or the plasma carotenoid levels and the dark adaptation values, but when the two groups were considered as a single population a degree of correlation between the dark adaptation measurements and the vitamin A values became apparent. Since the data of the several groups were not randomly distributed over the same range of values, it seems that the correlations arise from a tendency of the data to group themselves according to the separate clinical categories, the cirrhotic patients being at one end of a series and the normals at the other. This tendency for patients with hepatic cirrhosis to have higher dark adaptation and lower plasma vitamin A values than normal controls has been previously observed by others. It is possible that these correlations are attributable to factors other than a direct dependence of the retina on the level of vitamin A in the blood.

Exercise and Drug Effects on Electrocardiogram.—The changes in the electrocardiogram following exercise, epinephrine, ergotamine tartrate, atropine sulfate, mecholyl and pressure on the right carotid sinus were studied by Hartwell and his co-workers in 5 normal subjects with normal electrocardiograms. Each experiment was preceded by a period of rest until the pulse and blood pressure were stabilized. Exercise lowered the T waves of lead 2 in all electrocardiograms, the T wave in lead 1 was lowered in all but 1 subject and the T wave in lead 3 was lowered in 2 subjects and elevated in 1. Epinephrine lowered all the T waves of the three leads in 3 subjects, while in 1 the wave in lead 1 and in 1 the wave in lead 3 was not changed. The effect was maximal in ten to fifteen minutes. One subject showed frequent ventricular premature beats, while another 1 showed a varying PR interval with inverted P waves for a few minutes after 1 cc. of 1 : 100,000 of epinephrine intravenously. Ergotamine raised all the T waves of the three leads of the 5 subjects, except that the T wave in lead 2 of 1 subject showed no change. The effect was maximal in thirty to sixty minutes. Atropine lowered all the T waves of all leads in 3 subjects and lowered all but the T wave of lead 1 of 1 subject and of lead 3 of another subject. In 1 subject an auriculoventricular nodal rhythm developed twenty minutes after the injection of atropine. By forty minutes this had changed to sinus tachycardia. Mecholyl lowered all the T waves in all leads. Tachycardia developed in all 5 subjects within one to one and a half minutes after its administration. The blood pressure of 4 subjects fell. Pressure on the right carotid sinus slowed the pulse, increased the amplitude of all the T waves in lead 3, elevated the T waves in lead 1 and lead 2 of 2 subjects and decreased the T wave of lead 1 in 1 subject. If a "repeat" electrocardiogram is taken after a patient has been given atropine, epinephrine or mecholyl it should be remembered that the foregoing changes can be due to the effect of the drug.

Antistreptolysin Titer in Chronic Glomerulonephritis.—The serum antistreptolysin titer response of 81 patients with chronic glomerulonephritis was studied by Earle and his associates. Necropsies performed on 13 of the 24 known to have died revealed chronic glomerulonephritis, in 23 others typical attacks of acute glomerulonephritis or of an exacerbation of chronic glomerulonephritis seem to have established the diagnosis beyond doubt, and in the remaining 44 the opinion of several experienced observers was that there was no evidence of renal disease other than chronic glomerulonephritis. The patients have been observed over periods of four months to

eight years. In 61 patients there were one hundred and one significant rises in antistreptolysin titer. Eighty-five of these rises form the basis of the present study. The rises were of value in detecting the hemolytic streptococcus etiology of many infections from which group A hemolytic streptococci could not be isolated from the pharynx. A number of instances of chronic upper respiratory infection from which group A hemolytic streptococci were repeatedly cultured but which were unassociated with rises in antistreptolysin titer were designated as the "carrier state." The study of certain factors affecting the antistreptolysin titer response in chronic glomerulonephritis revealed the following results: Sex had no effect. In general, children exhibited greater titer response to infection than adults. The character of the preceding hemolytic streptococcus infection ("deep" or "superficial") did not affect the magnitude of the response. In general, patients with "nephrotic" edema exhibited smaller rises than did those without edema.

Journal of Experimental Medicine, New York

76:1-126 (July) 1942

Nutritional Deficiencies as Cause of Elevated Blood Pressure in Rats, with Special Reference to Vitamin B_2 Complex. R. M. Calder, Baltimore.—p. 1.

Radioactive Iron Absorption in Clinical Conditions; Normal, Pregnancy, Anemia and Hemochromatosis. W. M. Balfour, P. F. Hahn, W. F. Bale, W. T. Pommerenke and G. H. Whipple, Rochester, N. Y.—p. 15.

Studies in Rodent Poliomyelitis: III. Experimental Poliomyelitis in Guinea Pigs Produced with Murine Strain of SK Poliomyelitis Virus. C. W. Jungeblut, Rose R. Feiner and M. Sanders, New York.—p. 31.

Id.: IV. Pathology of Murine and Cavian Poliomyelitis. A. Wolf, New York.—p. 53.

Distribution of Rh Factor in American Indians. K. Landsteiner, A. S. Wiener, New York, and G. A. Matson, Fort Lewis, Wash.—p. 73.

Pathogenesis and Pathology of Experimental Type I Pneumococcus Pneumonia in Monkey. C. G. Loosli, Chicago.—p. 79.

Function of Components of Complement in Immune Hemolysis. L. Pillemer, S. Seifter, F. Chu and E. E. Ecker, Cleveland.—p. 93.

Selective "Staining" for Electron Micrography: Effects of Heavy Metal Salts on Individual Bacterial Cells. S. Mudd, Philadelphia, and T. F. Anderson, Camden, N. J.—p. 103.

Serologic Classification of Viridans Streptococci, with Special Reference to Those Isolated from Subacute Bacterial Endocarditis. Mathilde Solowey, New York.—p. 109.

Journal of Nat. Cancer Inst., Washington, D. C.

2:531-640 (June) 1942. **Partial Index**

Effect of Oral Administration of Aniline and *p*-Aminodimethylaniline on Growth of Rat. J. White and J. E. Edwards.—p. 531.

Effect of Dietary Cystine on Development of Hepatic Tumors in Rats Fed *p*-Dimethylaminoazobenzene (Butter Yellow). J. White and J. E. Edwards.—p. 535.

Mitochondria and Golgi Apparatus of Induced and Spontaneous Hepatomas in Mouse. A. J. Dalton and J. E. Edwards.—p. 565.

Influence of Estradiol Benzoate on Epidermal Methylcholanthrene Carcinogenesis. F. X. Paletta and P. F. Max.—p. 577.

*Some Observations on Atrophic Gastritis and Gastric Cancer. N. Shapiro, L. Schiff, Mary M. Maher and M. M. Zinninger.—p. 583.

Kidney and Blood Catalase Activity of Tumor Bearing Animals. J. P. Greenstein, H. B. Andervont and J. W. Thompson.—p. 589.

Riboflavin Content of Tumor Tissues. W. v. B. Robertson and H. Kahler.—p. 595.

Pathologic Changes Associated with Riboflavin Deficiency in Mouse. S. W. Lippincott and H. P. Morris.—p. 601.

Note on Enzymatic Activity of Transplanted Adenocarcinoma of Glandular Stomach of Mouse. J. P. Greenstein and H. L. Stewart.—p. 631.

Atrophic Gastritis and Gastric Cancer.—Since 1936 Shapiro and his associates have performed satisfactory gastroscopic examinations on 124 patients with chronic atrophic gastritis and on 50 patients with gastric cancer proved at operation or necropsy. They attempted to determine whether there is any relation between gastritis and gastric cancer by repeatedly examining patients with atrophic gastritis to detect the early development of gastric cancer. In addition, 35 of the 50 have been studied with particular emphasis on the presence or absence of atrophic gastritis. Microscopic evidence of atrophic gastritis was found in 28 of the 35. Atrophic gastritis was often overlooked gastroscopically in the presence of gastric cancer. Gastritis occurred more frequently in patients having a long history of digestive disturbance. Gastritis and the presence or absence of free hydrochloric acid were not related to the location of the tumor. Achlorhydria and anemia occurred more often in patients with atrophic gastritis. The frequent coexistence of the two diseases strongly suggests a relationship.

Journal of Neurophysiology, Springfield, Ill.

5:247-322 (July) 1942

Positional Nystagmus in Cerebellar Lesions. E. A. Spiegel and N. P. Scala, Philadelphia.—p. 247.

Effect of Alkalosis and Acidosis on Cortical Electrical Activity and Blood Flow. A. J. Lubin and J. C. Price, New York.—p. 261.

Deficiency in Phrenic Respiratory Discharges Parallel to Retrograde Degeneration. G. H. Acheson, E. S. Lee and R. S. Morison, Boston.—p. 269.

Origin, Conduction and Termination of Impulses in Dorsal Spinocerebellar Tract of Cats. H. Grundfest and B. Campbell, New York.—p. 275.

Interference Factors in Delayed Response in Monkeys After Removal of Frontal Lobes. R. B. Malmo, New Haven, Conn.—p. 295.

Further Study on Transmission in Isolated Nerve-Muscle Fiber Preparation. S. W. Kuffler, Sydney, Australia.—p. 309.

Journal of Nutrition, Philadelphia

24:1-96 (July) 1942. **Partial Index**

Mobilization by Alcohols of Vitamin A from Its Stores in Tissues. S. W. Clausen, W. S. Baum, A. B. McCoord, J. O. Rydeen and B. B. Breese, Rochester, N. Y.—p. 1.

*Study of Ascorbic Acid Requirements of Children of Early School Age. Vivian M. Roberts and Lydia J. Roberts, Chicago.—p. 25.

Chemical Composition of Twenty-Two Common Foods and Comparison of Analytic with Calculated Values of Diets. Frances Cope Hummel, M. L. Shepherd, H. Galbraith, H. H. Williams and I. G. Macy, Detroit.—p. 41.

Polyneuropathy in Thiamine Deficient Rats Delayed by Alcohol or Whisky. J. V. Lowry, W. H. Sebrell, F. S. Daft and L. L. Ashburn, Bethesda, Md.—p. 73.

Thiamine and Riboflavin Contents of Citrus Fruits. M. Irene Bailey and A. W. Thomas, New York.—p. 85.

Vitamin C Requirements of Children.—The vitamin C requirements of 5 children were determined by the Robertses, who found that 65 mg. of ascorbic acid was required by the 2 children 7 and 9 years of age and 75 mg. by the 3 who were respectively 10, 11 and 12 years of age to promote saturation on the basis of a 50 per cent excretion of the test dose in twenty-four hours. These amounts also maintained blood levels above 0.7 mg. per hundred cubic centimeters and allowed for average "retention." All the children gained a substantial amount in weight during the study.

Journal of Urology, Baltimore

47:751-860 (June) 1942

Influence of Diet on Blood Pressure and Kidney Size in Dogs. F. M. Allen and O. M. Cope, New York.—p. 751.

Incidence of Intrarenal Kidney Pelvis in Essential Hypertension. S. J. Sarnoff, Baltimore.—p. 769.

Carcinoma in Crossed Renal Ectopia. H. T. Langworthy and L. S. Drexler, Brooklyn.—p. 776.

Bilateral Hypernephroma: Report of Case. W. E. Forsythe, New York.—p. 784.

Primary Angioendothelioma of Kidney: Report of Case and Brief Review. C. L. Prince, Charlottesville, Va.—p. 787.

Malignant Tumors of Spermatic Cord: Brief Review with Presentation of Case of Angioendothelioma. C. L. Prince, Charlottesville, Va.—p. 793.

Ureterocele: Clinical Study and Report of Thirty-Seven Cases. G. J. Thompson and L. F. Greene, Rochester, Minn.—p. 800.

Rare Anomaly of Penis Associated with Imperforate Anus. W. J. Cochrane, Corner Brook, Newfoundland, and R. L. de C. H. Saunders, Halifax, N. S.—p. 810.

Congenital Absence of Penis. L. E. McCrea, Philadelphia.—p. 818.

Cystometry: Its Value and Limitations. M. K. O'Heeron, Chicago.—p. 824.

Neutral Steroids in Urine of Individuals with Benign Hypertrophy of Prostate. Mary Lucy Miller, St. Louis.—p. 846.

Kentucky Medical Journal, Bowling Green

40:249-292 (July) 1942

Exanthems and Related Conditions: Measles. W. W. Nicholson, Louisville.—p. 252.

Id.: Scarlet Fever. L. Palmer, Louisville.—p. 254.

Id.: Meningococcic Meningitis. J. W. Bruce, Louisville.—p. 256.

Id.: Public Health Control of Three Important Exanthematous Diseases. G. R. Rowntree, Louisville.—p. 258.

Late Toxemias of Pregnancy. R. F. Monroe, Louisville.—p. 259.

Plastic Surgery of Nose and Face. E. King, Cincinnati.—p. 264.

Role of Onychomycosis in Recurrent Dermatomycoses. F. Becker, New York.—p. 266.

Lessons from Experience. R. H. Cowley, Berea.—p. 269.

Macroglossia. J. F. Van Meter, Lexington.—p. 273.

Meningococcemia. M. M. Harrison, Louisville.—p. 276.

Kenny Treatment of Infantile Paralysis. K. A. Fischer, Louisville.—p. 278.

Food and the War. H. R. Leavell, Louisville.—p. 282.

Allergy and Its Relation to Skin Diseases. A. E. Cohen, Louisville.—p. 283.

Maine Medical Association Journal, Portland

33:149-174 (July) 1942

Central Maine Blood and Plasma Bank: II. Plan for Blood and Plasma Banks, State of Maine. J. Gottlieb, G. Clapperton and Bertha Wood Emond, Lewiston.—p. 151.
Rhinology and Otology. L. H. Berrie, Caribou.—p. 158.

Michigan State Medical Society Journal, Muskegon

41:525-612 (July) 1942

Serologic Diagnosis of Syphilis. F. E. Senear, Chicago.—p. 549.
Treatment of Fractures. F. C. Kidner, Detroit.—p. 556.
Treatment of Hemorrhage in Otolaryngologic Practice. J. E. Croushore, Detroit.—p. 557.
Angioid Streaks in Retina: Case Report. E. L. Cooper, Detroit.—p. 563.
Management of the Hypertensive Patient. G. T. McKean, Detroit.—p. 565.
Urologic Aspects of Hypertension. F. Bicknell, Detroit.—p. 566.
Recent Studies on Hypertension. P. Noth, Detroit.—p. 567.
*Simple Qualitative Test for Sulfonamide Drugs in Urine. R. W. Monto, Detroit.—p. 569.
*Functional Chest Pain. B. E. Goodrich and J. W. Keyes, Detroit.—p. 570.
Acute Meningoencephalitis Treated with Sulfanilamide: Case Report. R. L. Fisher and L. E. Heavner, Detroit.—p. 574.
Diagnosis of Cancer. H. J. Vanden Berg, Grand Rapids.—p. 576.

Sulfonamide Drugs in Urine.—The presence of sulfonamide drugs in the urine can be determined qualitatively by the addition of 1 cc. of a 2 per cent solution of paradimethylaminobenzaldehyde to 10 cc. of urine cooled to room temperature. The method, Monto points out, is unsuitable for jaundiced patients or for patients whose urine contains abnormal amounts of urobilinogen. The testing solution is best kept in a dark container. If the specimen of urine contains less than 25 mg. of the drug per hundred cubic centimeters a yellowish green precipitate appears. If the concentration is above 250 mg. a heavy orange precipitate appears.

Functional Chest Pain.—In reviewing the records of 227 patients complaining of pain in the chest not due to rheumatic, hypertensive, arthritic or periarthritic heart disease but who had been advised that their distress was due to heart disease, Goodrich and Keyes found that organic disease was present in 43; the diseases were coronary arterial occlusion, dissecting aneurysm, pericarditis, pneumothorax, pulmonary infarction, acute fibrinous pleurisy, metastatic carcinoma and pneumocele, acute myositis and in 19 the pain was referred. Thus, of the total, 165 were experiencing distress of functional origin. In 93 this distress was judged to be angina pectoris and in 72 the distress was due to symptoms of noncardiac origin, that is cardioneurotic distress, in which the therapeutic problem for the physician is no less difficult. Factors other than fear about the heart contributed to the mental anxiety of most of the 72 patients. Evidence of neurotic tendencies was frequent. These included sighing respirations, absent gag reflex, tremor of the tongue or eyelids, reduced threshold for pain, globus hystericus and neurocirculatory asthenia. The term cardiac neurosis is used to designate hypochondriasis—a type of psychoneurosis with fixation on the heart. These patients had previously had and will later have symptoms of neurogenic origin relating to other organs.

Military Surgeon, Washington, D. C.

91:1-128 (July) 1942. **Partial Index**

U. S. Army's Medical Department Equipment Laboratory: Its Research and Contributions to Field Service. A. S. Dabney.—p. 1.
Quesada's Method for Treatment of Fractures in Total Warfare. F. Quesada.—p. 17.
Alcoholism in Military Service. M. Moore.—p. 29.
General Principles in Treatment of Wounds and Fractures in Spanish War. I. Ponseti and J. P. Guri.—p. 39.
Pneumonia Therapy with Sulfathiazole in Military Practice. H. P. Marvin, F. D. Owings and E. K. Edelson.—p. 55.
Management of Acute Excitements. S. R. Warson.—p. 58.
A Medico Looks at Strategy. G. M. Blech.—p. 62.
Prevention and Control of Infectious Diarrheas Among Military Forces. J. Felsen.—p. 65.
Survey of Accidents Resulting from Army Maneuvers with Recommendations for Their Prevention. M. H. Fineberg.—p. 75.
Selection of the Parachutist. D. E. Thomas.—p. 81.
Wounds and Deformities of Orbital Region. L. K. Haynes.—p. 83.
Simple Treatment for Epidermatophytosis. S. J. Taylor Jr.—p. 93.
Eosinophilic Bodies in Blood of Epileptics. H. H. Parsons.—p. 97.

Minnesota Medicine, St. Paul

25:521-600 (July) 1942

Organization and Function of Medical Department of United States Army. F. R. Hook, Washington, D. C.—p. 535.
Role of the Hospital in Civilian Defense. W. D. Hunt, Omaha.—p. 542.
Maintaining Standards of Hospital Service During the War. P. H. Fesler, Nopeming.—p. 544.
Maintenance of Adequate Personnel for Hospitals. T. E. Broadie, St. Paul.—p. 549.
Conservation of Personnel, Supplies and Labor. Sister M. Patricia, Duluth.—p. 550.
Meeting Increasing Costs of Hospital Service. A. G. Stasel, Minneapolis.—p. 552.
Priorities and Problem of Obtaining Hospital Supplies. R. Watson, Rochester.—p. 555.
Study of Osteoporosis by Means of Controlled X-Rays of Bones: I. Method. E. L. Gardner, Minneapolis.—p. 557.

New England Journal of Medicine, Boston

226:969-1012 (June 18) 1942

Mental Disorders Associated with Pregnancy and Puerperium. Mabel D. Ordway and Annette M. McIntire, Boston.—p. 969.
Neurologic Aspects of Defects in Speech and Reading. E. M. Cole, Boston.—p. 977.
*Sulfathiazole Ointment in Treatment of Pyogenic Dermatoses. E. A. Glicklich, Boston.—p. 981.
Hematemesis Due to Rupture of Aortic Aneurysm: Report of Case. B. Kaplan, New Bedford, Mass.—p. 984.
Lichen Planus: Diagnosis, Etiology and Treatment. P. C. Baird Jr., Boston.—p. 986.

226:1013-1056 (June 25) 1942

Treatment of Pernicious Anemia: Nine Year Study of Maintenance Requirements, with Note on Efficacy of Purified Liver Extracts in Control of Neural Lesions. M. B. Strauss, A. J. Patek Jr., F. J. Pohle, H. J. Fox and J. H. Burchenal, Boston.—p. 1013.
Pneumococcic Meningitis: Study of Seventy-Two Cases. H. F. Dowling, C. C. Dauer, H. A. Feldman and C. R. Hartman, Washington, D. C.—p. 1015.
Reclassification of Reported Cases of Tuberculosis in Massachusetts: Preliminary Report. E. J. Welch and D. Zacks, Boston.—p. 1019.
Ophthalmology. J. H. Waite, Boston.—p. 1023.

Sulfathiazole Ointment for Pyogenic Dermatoses.—Glicklich used sulfathiazole ointment in the treatment of 42 patients with impetigo, pyoderma, eczematoid dermatitis and recurrent herpes simplex, herpes zoster, infantile eczema, disseminated neurodermatitis and stasis eczema with secondary infection. The pyogenic lesions healed in three to nine days, the average being five days. The strength of the ointment, whether 5, 10 or 15 per cent, made little difference in the rapidity of healing. From the results obtained the oral use of sulfonamides for treating minor pyogenic dermatoses is not warranted because of the danger of toxic manifestations, invasion of the blood stream from localized lesions and because such use of the drug should be reserved for more serious illnesses.

Psychiatric Quarterly, Utica, N. Y.

16:437-630 (July) 1942

Dementia Precox: Formulation by Kraepelin, Bleuler and Meyer. S. Katzenelbogen, Washington, D. C.—p. 439.
Hormone Influence on "Puerperal Psychosis" and Neurotic Conditions: Modification of Insulin Shock Treatment. A. Blumberg, Camp Shelby, Miss., and O. Billig, Asheville, N. C.—p. 454.
Hypothesis Regarding Cycles of Behavior in Schizophrenic Patient. S. Rosenzweig, Worcester, Mass.—p. 463.
Clinical Evaluation of Hypoglycemic and Convulsive Therapy. S. J. Tillim and Mildred T. Squires, Amityville, N. Y.—p. 469.
Rorschach Method of Personality Analysis. Z. A. Piotrowski, New York.—p. 480.
Folie à Deux—Psychosis of Association: Review of 103 Cases and Entire English Literature with Case Presentations. A. Gralnick, Central Islip, N. Y.—p. 491.
Semantic Dementia and Semisuicide. H. Cleckley, Augusta, Ga.—p. 521.
Acute Suprarenal Hemorrhage: Case; Waterhouse-Friderichsen Syndrome. W. A. Gollick, Kings Park, N. Y.—p. 530.
*Amphetamine Barbiturate Therapy in Psychiatric Conditions. E. Davidoff and G. L. Goodstone, Syracuse, N. Y.—p. 541.
Therapeutic Value of Protracted Insulin Shock. O. Billig, Asheville, N. C., and D. J. Sullivan, Durham, N. C.—p. 549.
Hyposensitivity to Foreign Protein in Schizophrenic Patients. H. B. Molholm, Worcester, Mass.—p. 565.
Follow-Up Study of Eighty-Seven Cases of Dementia Precox One to Four Years After Treatment with Insulin Hypoglycemic Therapy. O. J. McKendree, Utica, N. Y.—p. 572.
Joint Endeavors of the Administrative Physician and Psychotherapist. R. T. Morse and D. Noble, Rockville, Md.—p. 578.

Amphetamine Barbiturate Therapy in Psychiatric Conditions.—During the last four and a half years Davidoff and Goodstone have used sodium amytal and amphetamine sulfate in combination for the treatment of psychotic and psychoneurotic patients. Patients with manic-depressive psychosis, depression,

psychoneurosis, reactive depression and depressed psychoneurosis responded well. Sixty per cent of patients with incipient dementia precox of the catatonic type manifested some improvement. Follow-up study disclosed that 5 with schizophrenia have relapsed; 2 of these were of the catatonic group. Patients become more cooperative and tractable to the hospital routine. As the treatment has some prognostic value in that it gives some idea of the patient's plasticity and inherent capacity to improve, it is of some use in investigating and in understanding the patient and can be used as a preliminary procedure to other therapeutic methods. It has proved of value in the treatment of alcoholism and those organic conditions occurring with behavior disorders of children.

Rocky Mountain Medical Journal, Denver

39:469-532 (July) 1942

Clinical Diagnosis of Coronary Occlusion. J. G. Carr, Chicago.—p. 486.
Reducing Mortality of Perforated Appendicitis. A. S. Jackson, Madison, Wis.—p. 495.
Head Pains Associated with Brain, Its Nerves and Coverings and Cranial Blood Vessels. W. R. Lipscomb, Denver.—p. 499.
Bronchology. J. D. Bartholomew, Boulder, Colo.—p. 502.

Southern Medical Journal, Birmingham, Ala.

35:631-712 (July) 1942

*Human Bites: Analysis of Ninety (Chiefly Delayed and Late) Cases from Charity Hospital of Louisiana at New Orleans. F. F. Boyce, New Orleans.—p. 631.
Appendicitis in Kentucky. J. B. Lukins, Louisville, Ky.—p. 638.
Etiologic Factors in Prolapse of Uterus. J. W. Turner, Atlanta, Ga.—p. 643.
Aniseikonia. L. T. Post, St. Louis.—p. 649.
Use of Heparin in Treatment of Thrombosis of Central Vein of Retina. R. O. Rychener, Memphis, Tenn.—p. 652.
Acute Otitis Media and Mastoiditis. E. M. Seydell, Wichita, Kan.—p. 658.
Pleuropulmonary Tularemia: Report of Case with Recovery. J. O. Finney, Gadsden, Ala.—p. 660.
Scalenus Anticus Syndrome or Cervical Foraminal Compression? I. W. Nachlas, Baltimore.—p. 663.
Varicelliform Eruption of Kaposi. A. W. Pepple, T. W. Murrell and R. W. Fowlkes, Richmond, Va.—p. 667.
Hyperparathyroidism with Metastatic Deposits in Kidneys. A. A. Werner, St. Louis.—p. 671.
Plastic Operations in Urologic Surgery. O. S. Lowsley and R. W. Hunt, New York.—p. 676.
Paroxysmal Tachycardia of Supraventricular Origin: Management of Acute Seizure. E. H. Schwab and J. G. Willis, Galveston, Texas.—p. 687.
Transmission of Endameba Histolytica and Amebic Disease. J. Andrews, Atlanta, Ga.—p. 693.
Clinical Aspects of Amebic Dysentery as Seen in North Carolina. W. Schulze and J. M. Ruffin, Durham, N. C.—p. 699.

Human Bites.—Boyce reports 90 cases of infection resulting from human bites or injuries by human teeth. Sixty of his patients were Negroes; 71 were males of the ages between 9 and 68 years. The lesions included necrosis of soft tissue, tenosynovitis, thenar and palmar space infection and dorsal subcutaneous and subaponeurotic space infection. Osseous involvement was revealed roentgenologically in 21 and articular involvement in 8. Three patients were seen within twenty-four hours of their injuries, 36 between twenty-four hours and seven days and the remainder between eight and forty-two days. The constitutional reaction was manifested by chills, elevated temperature, headache and malaise. Some degree of leukocytosis was not unusual. The possibility of a bite should be borne in mind in any hand injury, particularly in one in which there is a foul discharge, and an endeavor should be made to elicit the true history. To close a human bite is the worst possible treatment. The treatment in early cases is the conversion of the anaerobic state to an aerobic state and the excision of devitalized tissue in which the fusiform bacillus and spirochete might readily grow in symbiosis. Thorough cleansing with soap and water should be carried out for ten minutes, and before the depth of the wound is determined it should be thoroughly irrigated with isotonic sodium chloride solution or clear sterile water. Devitalized tissue is then excised under anesthesia well beyond the area of injury. Injured tendons are not repaired, and no plastic work is done. If the joint capsule has been opened, collar incisions should be made in the adjacent web spaces to secure adequate drainage. The injured part is splinted, in hyperextension if the extensor tendon or articular space has been injured. Compression for the first several days should not cause edema or maceration. The dorsum of the hand is directed downward to promote drainage by gravity. Treatment in later cases depends on the pathologic condition present. Simple compression is sometimes effective, particularly if cellulitis and lymphangitis are present. The wound should be widely opened under anesthesia, with drainage or débridement or both carried out according to the indications. Amputation should be done without delay if a roentgenogram shows irreparable osseous involvement. The patient must be hospitalized and kept in bed with the hand immobilized. Constitutional treatment is carried out as necessary. Infections due to bites should be treated according to the anatomic principles followed in any other infection of the hand, and incisions, for the sake of future function, should be as conservative as is consistent with adequate drainage. Of the author's patients 36 were treated by incision and drainage, 5 by débridement, 2 by osteotomy, 3 by partial amputation of a finger and 21 by complete amputation of a finger; in 4 also a partial removal of a metacarpal bone and in 1 amputation of the arm was necessary. The period of hospitalization was one or two days in 24, eighty-seven days in 1 and between one week and seven weeks in the others. One patient died of pneumonia on the sixty-seventh day of hospitalization and the eighty-eighth day after injury.

West Virginia Medical Journal, Charleston

38:235-276 (July) 1942

Use of Thiocyanates in Hypertension. P. A. Tuckwiller, Charleston.—p. 235.
Postoperative Urinary Retention. D. Kessler, Huntington.—p. 239.
West Virginia Against Venereal Disease—1941. R. A. Vonderlehr, Washington, D. C.—p. 243.
Congenital Cataract: Case Report. D. Ketchum, Huntington.—p. 247.
Silent Symptoms and Signs in Tuberculosis. R. C. Edson and A. L. Starkey, Hopemont.—p. 250.
*Paralysis of Left Recurrent Laryngeal Nerve Following Subcutaneous Administration of Antitetanic Serum: Report of Case. H. S. Floyd, W. E. Pembleton and P. P. Vinson, Richmond, Va.—p. 253.

Paralysis of Laryngeal Nerve and Antitetanic Serum.—Floyd and his co-workers report what they believe to be the seventh case of paralysis of the left recurrent laryngeal nerve and of both brachial plexuses following a subcutaneous prophylactic administration of 1,500 units of antitetanic serum. The patient gradually improved, and within three and a half months the function of the arms was normal. The voice gradually returned to normal, and within six months of onset the larynx appeared normal on inspection.

Wisconsin Medical Journal, Madison

41:559-642 (July) 1942

*Treatment of Carcinoma of Prostate with Estrogens. W. M. Kearns, Milwaukee.—p. 575.
Joint Responsibility of Obstetrics and Pediatrics in Problems of Newborn. A. H. Parmelee, Oak Park, Ill.—p. 582.

Treatment of Carcinoma of Prostate with Estrogens.—Since the fall of 1940 Kearns has used estrogen for the treatment of 37 patients with carcinoma of the prostate. The diagnosis was established by rectal palpation, perineal biopsy, prostatic resection, skeletal and chest roentgenograms, blood phosphatase estimations and blood sedimentation rates. The ages of the patients ranged from 48 to 86 years, the average being 66.6 years. Seven patients have died and 30 are still under observation. The deaths were due to pulmonary embolism after cystotomy, acute pyelonephritis and uremia, pyelonephritis and generalized sepsis, bronchopneumonia, acute cholecystitis and cholemia or cerebral hemorrhage and pneumonia. There were 5 instances of intercurrent causes of death, as in only 2 did the progress of the carcinoma appear to be the cause. At the beginning 1 mg. of diethylstilbestrol was administered by mouth three times a day for two to three weeks. The dose was then reduced to 2 mg. daily for two to four weeks and then indefinitely to 1 mg. Clinical improvement, gain in weight, relief from pain throughout the body, improvement in blood counts, slowing of the sedimentation rate and a near normal phosphatase estimation was remarkable. After four or five months, improvement in the skeletal metastasis is noticed in the roentgenograms. In the prostate itself the gland not only shrinks in size but loses its dense nodularity, fixation and indiscrete outline. After two months this change is unquestionable. Nine patients had gastric irritation, but it was lessened when the medication was taken with milk. Only 3 patients were not benefited.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:685-714 (June 6) 1942

*Observations on Treatment of Scabies. R. M. Gordon and D. R. Seaton. —p. 685.
Penetration and Distribution of Sodium Sulfacetamide in Ocular Tissues of Rabbits. J. M. Robson and W. Tebrich.—p. 687.
Chlorinated Naphthalene Poisoning. N. G. B. McLetchie and D. Robertson.—p. 691.
Comparison of Dyspepsia in Army for 1940 and 1941. C. A. H. Howell. —p. 692.
*Sterilization of Surgical Rubber Gloves. W. J. Stuart.—p. 694.

Observations on Treatment of Scabies.—In comparing the therapeutic action for scabies of benzyl benzoate, dimethylthianthrene and tetraethylthiuram monosulfide, Gordon and Seaton found that all three when mixed with an equal quantity of a vegetable oil penetrate the skin within fifteen minutes of their application. Bathing should not be omitted if facilities are available. The most satisfactory results, irrespective of the drug used, come from clinics, where the treatment is carried out under skilled supervision, or from the services, where the patients are under discipline. Often it is useless to treat a patient unless his contacts also are treated. Therefore centers should be provided for adequate treatment if the present epidemic is to be controlled. A comparison in rats of the effects of the three sarcopticides reveals that all or almost all the mites were killed within three days, but tetraethylthiuram monosulfide had the most rapid action within twenty-four hours. The eggs were more resistant to treatment than the mites. The action of benzyl benzoate and dimethylthianthrene on the eggs was inferior to tetraethylthiuram monosulfide. A single application of any of the drugs was probably insufficient to produce a cure; therefore in human scabies a second application of the drug should be made after a week, by which time any viable eggs would have hatched. Tetraethylthiuram monosulfide should be given a clinical trial.

Sterilization of Surgical Rubber Gloves.—Stuart presents facts on the sterilization of every pair of rubber gloves that he used during more than thirty years of private practice. Sterilization by steam at a pressure of 5 pounds for twenty minutes was efficient, provided all air was removed from the sterilizer and a piece of gauze extended from the inside of the tips of the fingers out to the opening of the cuff. This assures the entrance of steam. There was no increased deterioration with increased pressure up to 7 pounds. Thereafter deterioration was progressive. Boiling caused more deterioration than steam sterilization. About nine or ten operations may be expected from a good brand of gloves at the present time. Thirty years ago the average number of operations was eighteen or more per pair of gloves, by 1920 it was fourteen and there has since been a progressive diminution. Sterilization by soaking in an antiseptic is not adequate because it is uncertain, especially as in actual use the rubber is stretched and it deteriorates. If a slight trace of antiseptic remains inside the glove, the skin of the surgeon's hands is soon damaged; and if the remaining antiseptic is washed out in sterile water each washing involves a risk of contamination.

East African Medical Journal, Nairobi

19:1-38 (April) 1942

*Plague Epidemic in Nairobi, with Special Reference to Place, Incidence and Treatment. D. Plum.—p. 3.
*Pathology of Plague. F. W. Vint.—p. 9.
Laboratory Diagnosis of Plague Infections. F. P. G. de Smidt.—p. 15.
*Plague Vaccine. R. M. Dowdeswell.—p. 26.
Some Unusual Clinical Manifestations of Plague. F. J. Wright.—p. 29.
Clinical Aspects of Lung Complications of Plague. G. Goldstein.—p. 33.

Plague Epidemic in Nairobi.—In eleven months 547 patients with bubonic plague were admitted to the two civil hospitals in Nairobi. Plum attended most of the postmortem examinations at the Native Civil Hospital. The cases can be divided into an early period of hemorrhagic lymph nodes and septicemia, a middle period of septicemia with pulmonary signs and a late period of primary pulmonary signs. Of the 547 patients 354 died. Sulfapyridine was used at both hospitals. All but 2 of the 131 patients recorded as having pneumonic or septicemic plague died. Sulfapyridine was used at the Infectious Diseases Hospital, where the majority of cases were bubonic. If given sufficiently early and in large doses, it acted almost as a specific. Most patients who recovered had a normal temperature by the second or third day. The relation of the duration of illness before treatment to prognosis is seen by the following: Of 33 giving a history of one day 4 died, of 72 giving a history of two days 16 died, of 17 giving a history of three days 6 died and of 40 giving a history of four or more days 35 died. The average dose of sulfapyridine used in an adult case was 4 tablets on admission and thereafter 2 tablets every two hours until the temperature had been normal for twenty-four hours.

Pathology of Plague.—From a study of the reports of pneumonic plague in other parts of the world, Vint is convinced that Kenya is not likely to suffer from an epidemic such as that of the historical pneumonic plague. But this does not mean that it is immune from small outbreaks, which will affect not only the African and Asiatic communities but also the European. It is more or less useless to examine for plague rats caught in a baited trap. A plague rat is a sick rat and will not be attracted by food in a trap. The rat that is already dead is the one that must be searched for. When dead rats are found so decomposed as to render microscopic detection impossible, smears should be made from the bone marrow.

Plague Vaccine.—According to Dowdeswell, the available evidence regarding the use of plague vaccine shows that a high degree of protection can be obtained in animals, and as a consequence there is good reason to expect some immunity in man. Field experiments support the contention that plague vaccine affords considerable protection. However, recourse to vaccine does not excuse those responsible for the health of a community or individual prosecution of the fundamental hygienic control measures.

Journal of Hygiene, London

42:103-226 (April) 1942

Vitamin C and Anemia. S. Thomson, A. J. Glazebrook and W. G. Millar. —p. 103.
Some New Observations on Developmental Cycle of Organism of Bovine Pleuropneumonia and Related Microbes. Emmy Klieneberger and J. Smiles.—p. 110.
Significance of Variation in Shape of Time Survivor Curves. E. R. Withell.—p. 124.
Mechanism of Self Disinfection of Human Skin and Its Appendages. J. M. L. Burtenshaw.—p. 184.
Notes on Subject Matter of Previous Paper. H. J. Buchanan-Wollaston. —p. 211.
Cheap and Efficient Medium for Plate Count of Milk. H. Barkworth and J. G. Davis.—p. 218.
Modification of Wilson and Blair's Bismuth Sulfite Agar (Stabilized Stock Solutions). J. A. de Loureiro.—p. 224.

Lancet, London

1:639-668 (May 30) 1942

*Sulfamethazine: Clinical Trial of New Sulfonamide. D. W. Macartney, R. W. Luxton, G. S. Smith, W. A. Ramsay and J. Goldman. —p. 639.
*Vitamin C Levels of School Children and Students in Wartime. L. J. Harris.—p. 642.
*Critique of Saturation Method for Determining Vitamin C Levels. L. J. Harris.—p. 644.
*Vitamin C Survey of Medical Students. G. E. C. Francis and A. Wormall.—p. 647.
Capillary Fragility in Peace and War: Statistical Comparison. H. N. Munro, S. Lazarus and G. H. Bell.—p. 648.
Incidence of Mottled Teeth. L. Spira.—p. 649.

Sulfamethazine.—Macartney and his associates used sulfamethazine for the treatment of 73 cases of pneumococcic lobar pneumonia and a few cases of meningococcic meningitis and gonorrhea. The total fatality for the 73 cases was 5; 4 were bacteremic; 10 other patients with bacteremia recovered. Improvement was generally noticed within twenty-four hours after treatment was begun. It was similar to that following sulfapyridine therapy only that the patients did not complain of the severe mental and physical depression which often accompanies sufapyridine treatment. Cyanosis was not observed, while nausea and vomiting occurred in only 5 and were not sufficient in degree or duration to interfere with the continuation of oral treatment. Complications developed in only 2 patients; pneumococcic meningitis developed in a woman of 52 who died, and slight jaundice developed three days after the

cessation of treatment in a man who made a good recovery. The results obtained with the drug in 6 cases of meningococcic meningitis (recovery in all) and 9 of gonorrhea in the male (satisfactory tests of cure after two weeks of treatment) indicate that the preparation is likely to be highly efficient. The preparation, because of its high solubility, is unlikely to cause renal damage.

Vitamin C Levels of School Children and Students.—Comparison of vitamin C levels before and during the war (winter season) of two groups of boys (one residing at an institution for waifs and strays and the other attending a poor class elementary school in the same town) revealed to Harris that there had been a considerable drop in the levels of both groups. Before the war the dietary at the residential institution included an orange daily. In peacetime the levels were notably better at the well managed institution than among the boys from the poor homes. Before the war all the boys at the institution on the improved diet were up to standard, but at the corresponding season during the war 21 out of 33 were slightly below standard and 4 were more severely below standard (needed four or five days of dosing). As many as 16 out of 29 boys from poor homes were in the latter category, and 2 of them remained unsaturated after five days. Tests of the boys at the institution at the close of the 1941 summer proved that, notwithstanding the war, the reserves were excellent. Similar tests carried out during wartime on 12 research workers, 7 medical students and 16 members of a woman's college showed on the whole that they were affected less than the poorer children in their "reserves" of vitamin C, but again there was evidence of a strong seasonal tide; the level of the woman members at the end of the summer was highly satisfactory. The results confirm the need for care in insuring adequate intakes of potatoes and greens as sources of vitamin C in winter.

Saturation Method for Determining Vitamin C Levels.—Harris concludes that the saturation method of determining vitamin C levels is reliable. He studied its relation to the following points: specificity, standards representing saturation, fluctuation in excretion after saturation, individual variation, influence of fever or other factors, relation to blood level, variation in individual requirement in relation to body weight, standards accepted for the daily requirement, the reality of subclinical deficiency, significance of saturation for health, lack of "reserves" of vitamin C and the possibility of adaptation.

Vitamin C Survey of Medical Students.—The vitamin C level of medical students as determined by the saturation test between May and July 1939 in 87, in July and September 1940 in 42 and in June and July 1941 in 52 shows that as far as "saturation" is concerned the condition of the subjects after the first nine months of war was not significantly different from that of twelve months earlier but in June and July 1941 (about twenty-one months after the outbreak of war) the subjects showed a much greater degree of unsaturation. Francis and Wormall state that this deficiency was on an average about one and a half large doses per subject (equivalent to about 1.5 Gm. of the vitamin).

1:669-696 (June 6) 1942

Amputation: Ten Commandments. G. Gordon-Taylor.—p. 669.
Charcoal Blanket for Deodorizing Discharges. S. Alstead.—p. 669.
*Calcium and Phosphorus Excretion in Thyrotoxicosis and Myxedema. J. D. Robertson.—p. 672.
*Influence of Sodium Amytal on Intelligence Test Scores. P. Slater and W. Sargant, with technical assistance of Margaret Glen.—p. 676.
Difco SS Agar in Diagnosis of Bacillary Dysentery. A. W. Pot.—p. 677.
Paratyphoid B Meningitis: Two Cases Which Recovered. W. H. Patterson.—p. 678.

Calcium and Phosphorus Excretion in Thyroid Disorders.—Robertson attempted to determine the mechanism of the increased excretion of calcium in thyrotoxicosis and myxedema. He found that in untreated thyrotoxicosis the serum calcium and inorganic phosphorus are diminished; subtotal thyroidectomy, in the absence of any impairment of the parathyroids, causes the serum calcium and inorganic phosphorus to return to normal. The loss of calcium is only in the urinary output; the fecal loss is essentially normal. Iodine causes a significant diminution in the mean calcium output, but the output still remains above normal. The phosphorus loss is predominantly in the urine. Following iodine therapy the mean phosphorus balance returns to normal. Subtotal thyroidectomy lowers the phosphorus balance to below normal. There is a highly significant difference between the phosphorus balance of normal subjects and of thyrotoxic patients after a successful subtotal thyroidectomy. In untreated myxedema the serum calcium and inorganic phosphorus are normal while the serum phosphatase is diminished. With thyroid feeding the serum calcium falls and the inorganic phosphorus rises to a level which makes the calcium and phosphorus product the same after as before thyroid feeding. The serum phosphatase rises to normal. The calcium output is diminished. Adequate thyroid feeding increases the output to normal, and the younger the subject the greater is the increase. The fall in calcium output affects only the urine, and the increased calcium output after thyroid feeding occurs only in the urine. The phosphorus balance is positive, compared with a negative balance in normal persons. Thyroid feeding converts the positive balance to near normal. The diminution in output is in the urine. The fecal output is normal. The diminished phosphaturia is both total and relative. Thyroid feeding causes a great increase in the phosphaturia and at the same time a significant fall in the output of phosphorus in the feces to below normal. It is suggested that thyroxine directly affects the renal threshold for calcium. Excessive secretion of thyroxine in thyrotoxicosis lowers the threshold, whereas deficient secretion in myxedema raises it. The raised excretion of phosphorus in thyrotoxicosis and the lowered excretion in myxedema are probably secondary to the changes in calcium excretion.

Sodium Amytal and Intelligence Test Scores.—To determine the practical usefulness of sodium amytal for reducing apprehension in time of stress, Slater and Sargant believed it necessary to have some notion of the degree to which it may impair the normal processes of thinking and the capacity to react calmly to an emergency. To this end they measured the effect of the drug on the thought processes of men who come into the hospital; one week they were given a routine intelligence test and in the next week they were retested an hour before and after they had a capsule of the drug or dextrose (control). There was a drop of 3 to 4 points in an individual's intelligence quotient after taking the drug. This does not represent an appreciable decline in mental efficiency; nearly 400 patients were tested to find whether the differential drop was large enough to be significant. Intelligence quotients vary much more widely among people in a single occupation, even when highly specialized. A variation of 3 or 4 points is not likely to affect seriously a person's working efficiency, when the ability of his compeers varies between so much wider limits. Therefore it is concluded that sodium amytal in doses of 3 grains (0.2 Gm.) or less does not impair intellectual efficiency to any important extent. The actual dose employed in clinical practice will have to be chosen with individual susceptibilities and requirements. For those engaged on highly specialized work, its effect on the special aptitudes involved should be separately tested.

South African Journal Medical Sciences, Johannesburg

7:1-84 (Feb.) 1942. Partial Index

Changes in Plasma Inorganic Phosphate Associatetd with Endocrine Activity in Xenopus Levis: VII. Captivity and Normal Reproductive Cycle. Velva Schrire.—p. 8.
Life History of Corpus Luteum of Menstruation in Elephantulus. C. J. van der Horst and J. Gillman.—p. 21.
Serum Proteins of Healthy Bantu Males. Margaret H. Quinton and H. D. Barnes.—p. 42.
*Effect of 2-Methyl-1, 4-Naphthoquinone on Clotting Factors of Blood of Jaundiced Patients with Hypoprothrombinemia. H. B. Stein.—p. 72.

Methylnaphthoquinone and Blood Clotting.—The effect of 2-methyl-1, 4-naphthoquinone on the clotting factors of the blood of 23 jaundiced patients with diminished plasma prothrombin was investigated by Stein. He observed that the plasma prothrombin responded in one of four ways: (1) prompt return to the normal level following a single injection of 5 mg. in 15 patients, (2) delayed return to the normal level in 2, (3) a partial but ineffective response in 2 and (4) complete lack of response in 4. The last two ineffective responses occurred in the 6 patients with jaundice of hepatocellular origin. Therefore

the nature of the prothrombin response obtained is of great value in differentiating obstructive from hepatocellular jaundice. The blood proteins estimated for 6 patients with an effective prothrombin response were not materially affected by the naphthoquinone; the fibrogen response of 2 was also ineffective. The serum calcium examined in 13 before and after the injection of naphthoquinone showed a type 1 prothrombin response in 9, a type 2 in 1, a type 3 in 2 and a type 4 in 1. The serum calcium variation as a result of the injection was inconstant and most cases show but little change. The maximal increase was 1 mg.; the maximal decrease was also 1 mg. The serum calcium thus shows no relation to the prothrombin index and is probably not a factor in producing increased coagulability of the blood seen by the rise in prothrombin. The erythrocyte sedimentation rate and packed cell volume determination in 14 patients before and after the injection of the naphthoquinone bore no relation to any alteration in prothrombin. The clot retraction, estimated in 5, showed a significant increase in the serum volume index and clot retraction index in 3, and in 2 the serum volume index was unaffected. The Ivy bleeding time as determined in 2 patients was essentially unaltered twenty-four hours after the injection of naphthoquinone, although the prothrombin index had reached a normal level.

Schweizerische medizinische Wochenschrift, Basel

72:205-248 (Feb. 21) 1942. **Partial Index**

Treatment of Bronchial Asthma. C. Jiménez Díaz.—p. 205.
Recent Studies on Pellagra. G. Frontali.—p. 208.
Medicinal Induction of Labor. H. Guggisberg.—p. 217.
Tonsillar Surgery in Children. L. Rüedi.—p. 220.
Origin and Treatment of Arthritis Deformans. P. Nicod.—p. 221.
Pros and Cons of Sulfonamide Therapy. R. Staehelin.—p. 225.
*Experimental Study of Intraperitoneal Sulfanilamide Therapy. A. Jentzer and A. Calame.—p. 229.

Sulfonamidotherapy by Intraperitoneal Route.—Jentzer and Calame experimented with intraperitoneal introduction of sulfonamides in rabbits and mice. They found that it is compatible with life to give comparatively large doses to rabbits when sulfathiazole is given as a neutralized liquid. The same doses of sulfathiazole in powder form (mixed with 4 parts of boric acid) kill the rabbits in several hours. The effect of the adjuvant body is responsible. Studies on the absorption and elimination disclosed that the blood concentration curve mounts quickly in the first two hours. The blood content becomes quite elevated. It declines rapidly up to the fifth hour; then the concentration is maintained at a low level for forty-eight hours. In mice subjected to a fatal infection exclusive intraperitoneal sulfanilamide therapy proved less effective than subcutaneous therapy. The authors believe that peritoneal infection will be benefited by a single intraperitoneal application of a neutralized liquid sulfanilamide preparation and that further treatment should consist of intramuscular administration followed by the oral.

Archivos de Medicina Infantil, Havana

11:47-94 (April, May and June) 1942

Congenital Atresia of Colon. V. Santamarina, C. Salazar and D. Sosa Bens y Hechevarria.—p. 47.
Phosphatase of Blood Serum in Rickets. A. Sellek Azzi and E. de Castro.—p. 52.
*Paroxysmal Painful Crises with Abdominal Predominance in Sickle Cell Anemia. J. G. Cabrera Calderín, J. M. Labourdette Scull and L. Barreras.—p. 61.
Psychology of Children and Adolescents. M. Táboas González.—p. 68.
Epidural Abscess and Purulent Meningitis Without Bacteria in Spinal Fluid: Staphylococcic Septicopyemia. R. Machado, F. Borges y Hernández and E. F. del Moral.—p. 77.

Painful Abdominal Crises in Sickle Cell Anemia.—Cabrera Calderín and his collaborators report the case of a Negro girl aged 11 who entered the hospital with acute abdominal symptoms. The symptoms subsided and the girl was dismissed. One week later she had another abdominal crisis and was again sent to the hospital. Several examinations, including roentgenoscopy of the vertebral column, were negative. The blood count disclosed 2,450,000 erythrocytes, 26,000 leukocytes, 40 per cent hemoglobin and falcular erythrocytes of sickle cell anemia. The attacks were interpreted as lumboabdominal crises of sickle cell anemia. Blood transfusion produced great improvement; the painful crises subsided, but pressure still elicited pain in the epigastric and lumbar regions. Several days later the girl had severe pain in the right elbow. This pain ceased following a blood transfusion and application of heat. Anderson and Ware ascribe the pain to splenic infarcts, stretching of the splenic capsule being the cause of pain. The articular pains are due to osseous changes. Examination of the blood is of greatest importance in the differential diagnosis, because otherwise sickle cell anemia might be mistaken for hemolytic jaundice, ovalocytic anemia, Lederer's syndrome, acute hemolysis or Cooley's anemia. Blood transfusions and liver therapy are helpful in the treatment. Possibility of sickle cell anemia should be considered in Negro patients or in half breeds exhibiting anemia and abdominal crises.

Semana Médica, Buenos Aires

49:741-784 (April 16) 1942. **Partial Index**

*Leprosy with Acute Onset. C. Fonso Gandolfo, I. R. Steinberg and L. Charosky.—p. 741.
An Extraordinary Case of Simmonds' Disease. H. Salomón and J. C. Lascano.—p. 746.
Urethrorectal Fistula and Partial Obliteration of Urethra Following Intervention for Anal Atresia. J. A. Biancardi, C. E. Echesortu and C. Maghenzani.—p. 759.
Roentgen Diagnosis for the Prophylaxis of Pulmonary Tuberculosis in School Children of Argentina. E. M. Fernández Rey.—p. 768.
Results of Application of Law for Prevention of Venereal Diseases. S. Rosner and B. Reinecke.—p. 773.

Leprosy with Acute Onset.—Fonso Gandolfo and his collaborators point out that leprosy resembles tuberculosis in several respects including an acute onset. The initial lesions are usually seen on the uncovered portions of the body, the face and the hands. The initial lesions may be single or multiple. A single lesion may prove the existence of leprosy. A leprotic outbreak or a leprotic reaction, capable of simulating various acute entities, in many cases can constitute the first manifestation of leprosy. This acute initial picture is often diagnosed as acute polyarticular rheumatism, septicemia, erysipelas, polymorphic erythema and the like. The acute onset of leprosy is comparatively frequent.

Beiträge zur Klinik der Tuberkulose, Berlin

96:81-138 (March 21) 1941. **Partial Index**

Local Sensitivity to Tuberculin and Its Artificial Production in Human Subjects (Problem of Vaccination Against Tuberculosis). G. Hensel.—p. 81.
Occurrence of Quinine Resistant Serum Lipase in Patients with Pulmonary Tuberculosis. G. Birath.—p. 89.
Education and Training of Children and Young Persons in Sanatoriums. H. Brügger.—p. 95.
New Instrument for Suction Drainage of Pulmonary Cavities. H. Freese and R. Hofmann.—p. 120.
*Chronic Tuberculous Cerebrospinal Leptomeningitis. Barbara Schmidt.—p. 124.

Chronic Tuberculous Cerebrospinal Leptomeningitis.—Schmidt reports the case of a man, aged 28, who, since the age of 18, had presented obscure cerebral symptoms with convulsions, loss of consciousness and mental disturbances. Necropsy disclosed a chronic tuberculous cerebrospinal leptomeningitis with tubercles in the dura, internal hemorrhagic pachymeningitis, calcified foci in the tracheobronchial lymph nodes, inflammatory swelling and tuberculosis of the paratracheal and hilus lymph nodes of both lungs, pleural adhesions and catarrhal urocystitis with dilatation of the bladder, ureters and renal pelves. Microscopic examination of the lymph nodes disclosed calcified tuberculous foci. The microscopic aspects of the brain are described in detail. There was evidence that the chronic tuberculosis of the leptomeninges had a strong tendency to cicatrization. The author cites 3 similar cases from the literature.

Deutsches Aerzteblatt, Berlin

71:73-84 (Feb. 15) 1941. **Partial Index**

Eugenic Marriage Consultation. H. Vellguth.—p. 73.
*Prevention of Tropical Diseases. E. Martini.—p. 77.

Prevention of Tropical Diseases.—Martini points out that many tropical diseases are now more easily controlled than some of the diseases of the temperate zone. The reason is that chemical industry has developed effective drugs against tropical diseases, particularly against those caused by protozoa. Every

shortening of an infectious disorder by effective chemotherapy reduces the danger of dissemination. The patient who has been cured and no longer harbors the pathogenic organisms ceases to be a danger to his environment. The author mentions the use of quinine, atabrine and plasmochin in the treatment of malaria, the efficacy of germanin in trypanosomiasis, the use of antimony preparations in the leishmanioses (kala azar, oriental sore), of emetine and chiniofon in amebic dysentery, of ascaridol in hookworm diseases and of arsphenamine in relapsing fevers and frambesia. There remain yellow fever, dengue and sandfly fever, for which as yet there are no effective chemotherapeutic agents. Also in leprosy and diseases caused by Schistosoma chemotherapy is gaining ground slowly. It is important for the prevention of tropical diseases that some of the aforementioned chemotherapeutics can be used prophylactically. It was an error to believe that small daily doses of quinine would prevent malaria. Infection takes place in spite of this prophylaxis, although the manifestations of the disease are prevented. None of the malarial drugs prevent malaria and none completely remove the plasmodia from the organism, although plasmochin is said to reduce the possibility of relapse considerably. The prophylactic action of germanin in trypanosomias is more favorable. In diseases like yellow fever, in which chemotherapy has been disappointing, vaccination has made considerable progress. In addition to drugs and vaccines the interruption of the cycle of transmission is important. This is accomplished by sanitary disposal of wastes, isolation of cases of leprosy and eradication of the insect vectors in case of malaria and particularly of yellow fever. He also stresses the importance of screening houses. Hygiene in the tropics requires the collaboration of hygienist, entomologist and sanitation engineer.

Acta Psychiatrica et Neurologica, Copenhagen

16:389-506 (No. 4) 1941. **Partial Index**

Electromyographic Observations in Congenital Myotonia. F. Buchthal and S. Clemmesen.—p. 389.
*Striatal Syndrome with Rheumatoid Arthritis After Nitrous Oxide Anesthesia. A. M. Lorentz de Haas.—p. 405.
Artificial Changes (Apart from the Admixture of Blood) in the Cerebrospinal Fluid During Evacuation of Large Amounts of Cerebrospinal Fluid with Simultaneous Insufflation of Air. E. Lund and A. V. Neel.—p. 459.
*Dupuytren's Contracture and Epilepsy: Clinical Connection Between Dupuytren's Contracture, Fibroma Plantae, Periarthrosis Humeri, Helodermia, Induratio Penis Plastica and Epilepsy, with an Attempt at a Pathogenic Evaluation. M. Lund.—p. 465.

Striatal Syndrome with Arthritis After Nitrous Oxide Anesthesia.—De Haas reports the history of a man aged 45 who underwent a gastric resection under nitrous oxide anesthesia. He was cyanotic during the anesthesia, and his respiration suggested oxygen lack. There was arrest of breathing for two or three minutes. Artificial respiration and cardiac massage brought about first arterial pulsation followed by the return of respiratory movements. The cessation of respiration must have increased the cerebral anoxemia. Chronic hypoxemia was probably the main cause of a typical striatal syndrome and mild signs of a pyramidal tract lesion. The report is presented chiefly because the patient, who had never had articular complaints, had developed five weeks after the operation pain, redness and swelling of various joints of the arms and legs. The rheumatoid arthritis was associated with fever. It has been suggested that a connection exists between lesions of the corpus striatum (or substantia nigra) as found in paralysis agitans and conditions similar to osteoarthrosis and chronic rheumatoid arthritis. Some investigators consider that all abnormalities of joints falling within the scope of rheumatism (therefore including rheumatic fever and acute rheumatoid arthritis) are primarily determined cerebrally. The case presented here may be of some significance in this connection. As far as the author knows, no such case has been reported before.

Dupuytren's Contracture and Epilepsy.—Lund has not been able to find in the literature any attempt to correlate Dupuytren's contracture with epilepsy. His own observations at an institute for epileptic patients demonstrate that the two concur sufficiently often to suggest a pathogenic relationship. The literature on pathogenesis of Dupuytren's contracture emphasizes the hereditary factor, chronic trauma, a neurotrophic disturbance and finally a fibroblastic diathesis, a tendency to mesenchymal hyperplasia. Dupuytren's contracture may manifest itself as simple nodular thickening of palmar fascia or this may be associated with the characteristic puckering of the skin; there may be active finger contracture or passive contracture. The author has examined 190 male and 171 female epileptic patients for the presence of Dupuytren's contracture, fibroma plantae and periarthrosis humeri. Among the males 22.6 per cent had nodules or thickened bands in the palmar fascia, 15.8 per cent had the characteristic puckering of the skin in the palm and 11.6 per cent had finger contracture. The percentages among the epileptic females were about half as high. Fibroma plantae was found in 13 males and 12 females; 22 of these had also Dupuytren's contracture. There were 12 cases of periarthrosis humeri, in 11 of which Dupuytren's contracture was present. One hundred of the males and 100 of the females were examined for "helodermia" (subcutaneous fibroma of the dorsal aspect of the middle joints of the fingers), which was found in 29 males and 13 females; 29 had Dupuytren's contracture as well as helodermia. One hundred of the males were examined for induratio penis plastica, which was found in 3 cases; 2 of these had also Dupuytren's contracture. A comparison with a control group consisting of 1,021 workers doing hard manual labor showed that Dupuytren's contracture was four times as frequent among the epileptic patients as among the workers; the degree of the contracture seems to be more pronounced and the manifestation age lower among the epileptic. Among the workers there was only 1 case of fibroma plantae (0.1 per cent), among male epileptic patients 13 (6.8 per cent). Helodermia was about twenty times more frequent among the epileptic than among the controls. Future investigations should inquire into hereditary connections between epilepsy and fibroplastic diathesis, the possibility that these disorders are due to functional disturbances in the vasomotor system of epileptic patients (constant hypersympathectomy?) and (3) the question of whether prolonged treatment with phenobarbital could be responsible.

Nordisk Medicin, Stockholm

12:3307-3386 (Nov. 22) 1941

Hospitalstidende

Biologic Assay and Comparison of Effect of Three Synthetic Estrogenic Substances and Estrone. I. Andersen.—p. 3307.
Results of Operative Treatment of Hemorrhoidal Tumors by Modified Whitehead Method. H. Faber.—p. 3311.
Microscopic Organic Changes in Dogs Narcotized with Ethyl Chloride and Ether. S. Selsø.—p. 3314.

Finska Läkaresällskapets Handlingar

Hereditary Thrombopathies. E. A. von Willebrand.—p. 3317.
Uterus Bicornis and Bicollis with Vagina Duplex Septa Treated Operatively According to Strassmann with Succeeding Pregnancy: Case. E. A. Björkenheim.—p. 3324.
Pregnancy and Parturition in Women with Malformed Uterus. R. Hasselblatt.—p. 3327.
Stone in Abdominal Cavity: Case. I. Wallgren.—p. 3331.
*Chyle Cysts in Mesentery. P. Malm.—p. 3332.

Norsk Magasin for Lægevidenskapen

Tonsillogenic Myocarditis. H. Laake.—p. 3337.

Hygiea

Analysis of Race Concept and New Method for Distinguishing Races. G. Dahlberg.—p. 3355.

Chyle Cysts in Mesentery.—The first of Malm's patients with cavernous lymphangioma with cyst formation was a girl aged 6, who gave a history of disturbance since infancy. Operation for occlusion revealed a flabby tumor, which had not been palpable, originating from the mesentery of the small intestine and located in the lowest part of the abdomen. The tumor weighed 1,060 Gm. and contained chyle. In the second patient, a girl aged 12, the tumor, of long standing, originated from the upper part of the mesentery of the small intestine, was palpable and contained 1.25 liters of chyle fluid. In both cases extirpation and resection of the intestine were followed by recovery. The author believes the chyle cysts to be true angiomas probably developed from embryonal germs.

Book Notices

Urology in War: Wounds and Other Emergencies of the Genito-Urinary Organs, Surgical and Medical. By Charles Y. Bidgood, Lt. Comdr. (M. C.) U. S. N. R. Cloth. Price, $2. Pp. 78, with 27 illustrations. Baltimore: Williams & Wilkins Company, 1942.

This treatise was intended to be an elementary guide to medical officers who are unfamiliar with the recognition and treatment of genitourinary lesions observed in war. The chapter on traumatic lesions of the genitourinary tract is very brief; in fact, less than fourteen pages are devoted to this important phase of the subject. It embodies many excerpts from Dr. H. H. Young's Practice of Urology and his other well known contributions to the subject of war lesions. It should be said that the illustrations are excellent. Included in the book is a chapter on anesthesiology by Dr. Tovell. This is an excellent epitome of practical anesthesiology which could be applicable to any surgical field. It merits more general recognition. Also included is a good, although very brief, chapter on the subject of bladder dysfunction after acute cerebrospinal injury written by Lloyd Lewis. Although a monograph of this type may be of some practical value, one wonders whether the inquiring medical officer would not gain more by a perusal of more comprehensive books and articles already published on the subjects involved.

Experimental Studies on the Vasomotor Innervation of the Retinal Arteries. By Kaj Porsaa. The Translation into English by Robert Fraser. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentligt at forsvares for den medicinske Doktorgrad, København, 1941. Paper. Price, 10 Danish kroner. Pp. 201, with 55 illustrations. Copenhagen: Einar Munksgaard, 1941.

This monograph, translated into English by Robert Fraser, appeared as supplement 17 of the *Acta ophthalmologica*. In chapter 1 the vascular circulation is discussed under subheads of general, vasomotor innervation of the cerebral arteries and vasomotor innervation of the retinal arteries. In these the author presents a comprehensive review of the literature. Chapter 2 reviews the vascular anatomy of the globe. In chapter 3 the author describes his method. He used cats and anesthetized with intramuscular injections of 0.5 to 0.6 cc. per kilogram of body weight of butyl-bromallyl-malonylurea in divided doses. The pupils were dilated with atropine. The retinal vessels were viewed with a Leitz Ultrapak microscope with a contact glass on the cornea. Recordings of vessel changes were made by the method devised by Fog. Caliber of the vessels was measured following intravenous injections, electrical stimulation and changes in intracranial pressure. Blood pressure and intraocular pressure were also recorded by kymographic tracings.

The reaction of retinal vesseis to rise in blood pressure produced by epinephrine, compression of the abdominal aorta and increase in intravascular blood volume was studied. The author found that the tonus of the retinal arteries during rises of the systemic blood pressure increases so much that the vessel contracts. The increase is not always great enough to resist exceptionally high pressures and the vessels dilate passively. Reducing blood pressure by injections of acetylcholine, stimulation of the depressor nerve, inhibiting heart action and diminution of intravascular blood volume were produced on several series of animals. The author concluded that retinal arteries dilate with a fall in blood pressure, regardless of how it is produced.

The retinal arteries are normally in a state of tonic constriction, which increases with a rise of blood pressure, with the result that the vessels contract and diminish when the pressure falls and the vessels dilate. The changes were due to alteration of blood pressure. The author attempted to discover whether the variations in blood pressure alter retinal artery caliber through the nerves by chemical or physical means. He stimulated the sympathetic nerves with a faradic current, produced rise of blood pressure by increasing the blood volume after denervations, produced a fall in blood pressure by reduction of volume after denervation and observed the arteries during asphyxia and injections of histamine. He concluded that regulation of tone of the retinal arteries is determined by the pressure variations themselves.

A study of the relation of intracranial pressure increase to retinal arteries led the author to conclude that the vessels respond to moderate increases by dilating. If the pressure rises to that of the systemic blood pressure the arteries are compressed and cerebral anemia follows, causing a rise of systemic pressure, this in turn causing dilatation. His experiments showed that amyl nitrite caused a dilatation of the retinal vessels. Changes in intraocular pressure showed no causal relation to alteration in caliber of the retinal vessels. Porsaa concludes that he has proved that "retinal arteries and those of the brain in all respects behave physiologically alike." This monograph is of interest to students of vascular physiology.

You Don't Have to Exercise! Rest Begins at Forty. By Peter J. Steincrohn, M.D. Cloth. Price, $1.50. Pp. 207. Garden City: Doubleday, Doran & Company, Inc., 1942.

This is a small book with a large impact. It is a direct challenge to the popular belief, fostered by many promoters of the cult of the physical, that exercise is the sine qua non for physical fitness. It comes at a time when the nation has barely escaped—or has it?—the menace of a national program of exercise for all citizens, of whatever age or physical state, in the name of victory through "physical fitness." The theory that exercise is essential for the maintenance of bodily vigor into the upper age brackets is the stock in trade of many who view with alarm the protuberant abdomen of the bleacher athlete and point to his laziness as the cause of his unfitness. Quite the contrary, says this startling book, with commendable frankness and courage: "Rest begins at forty." Never exercise if you can avoid it, after you have passed forty and lost the youthful urge to activity. Far from keeping you fit, it may hasten your breakdown and hurry you to an untimely death. Gardening and walking are the only exceptions.

The author explains his theory effectively, pointing out its sound biologic foundation. Active lives, in nature, are short lives; deliberate lives are long. Witness the rabbit on one hand, or the mouse, and on the other the turtle and the elephant. Youth requires exercise, desires it normally and should have it. Age demands rest and must have it. Instead of exercise for those over 40 he recommends good posture, which gives the older muscles all the exercise they require, merely through maintenance of normal physiologic tonus. Plenty of sleep, relaxation through hobbies, and judicious vacations (not crammed with exercise) complete his alternative program.

It is a delightfully blithe and breezy book, crusading with a laugh instead of the deadly seriousness of the reformer. The author is far from a reformer. All he wants is to give you the facts—take them or leave them. You'll suffer the consequences, if any, not he. Many doctors will read it with delight, for they have experienced the same situations he describes with patients addicted to exercise sufficient to kill two men and wondering why they "can't take it any more." It should be read by those same patients too. It is written for lay readers, to make them lazy readers and help them live longer by living more leisurely.

Heredity, Food, and Environment in the Nutrition of Infants and Children. By George Dow Scott, A.B., B.S., M.D., Consulting Pediatrician to the Lutheran Hospital, New York City. Cloth. Price, $5. Pp. 778. Boston: Chapman & Grimes, Publishers, 1942.

This volume by its title indicates the tremendous scope of its approach to the problem of nutrition for children. Sections on heredity and environment, the biology of mating, the growth of the cell and on disease in general precede discussions of metabolism and the discussion of infant nutrition. There are special sections devoted to each of the individual foods, the fruits, physical and psychic stimuli and physiologic processes. The scope of the volume is thus so great that it is far more likely to be considered a work of reference than a book easily readable or a textbook. It is interesting to observe that the section on oleomargarine fails to mention the recent action for enrichment of margarine with vitamin A. The section on cocoa and chocolate in the child's diet credits the eating of chocolate with the causation of tooth decay and fails to mention the frequent sensitivity to this substance. The author has surveyed a vast literature in compiling the information that is offered, and certainly his approach to the subject is in accord with modern points of view.

Behind the Mask of Medicine. By Miles Atkinson. Cloth. Price, $3. Pp. 348. New York: Charles Scribner's Sons, 1941.

The unfortunate title of this book seems to indicate that it will reveal much that has been concealed, yet it really does nothing of the sort. Indeed there has been so much written and spoken and otherwise displayed about medicine in recent years that many a layman seems to know more about what goes on than do the doctors themselves. Dr. Atkinson with excellent literary ability discusses new advances in relationship to therapy, diagnosis, prognosis and other aspects of medical care. If any of his chapters approach revelations it is the one on excesses in surgery, yet every one knows that surgery has become much less difficult as the result of modern anesthesia and standardization and that, therefore, the tendency toward surgery is a little greater than it used to be. If one wished to quarrel with the author, one might select for the purpose the chapter on "Practice, Ethical and Unethical"—yet he does not find any solution for the problem of fees. Particularly important is the section on the plight of the hospitals. This is a problem which today concerns all the nations of the world. The author offers several solutions for improvement, but it is doubtful that any one has yet worked out a plan that will be generally satisfactory. The chapter on socialized medicine offers planning for the development of medical centers in areas with the hospital as the center. Something similar was proposed many years ago by Drs. Frank Billings, Victor Vaughan and other leaders of a previous generation. Great Britain and the United States seem to be moving toward this plan, but the details, which the author dismisses somewhat too readily, are, after all, the factors which will determine the success or failure. In his final chapter Dr. Atkinson thinks that the world is going to be too tired after this war to start building a better world on the ashes of the old. That remains to be seen!

A Textbook of Bacteriology. By Thurman B. Rice, A.M., M.D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine, Indianapolis. Third edition. Cloth. Price, $5. Pp. 560, with 119 illustrations. Philadelphia & London: W. B. Saunders Company, 1942.

This book is intended to serve as a practical rather than as a theoretical textbook for beginning students as well as general practitioners of medicine, dentistry and pharmacy. The subjects are discussed in a sketchy manner. For example, in the chapter on the typhoid bacillus no mention is made of O and H agglutinins and of Vi antigen. In the discussion on the whooping cough bacillus no mention is made of the phase of the organism. The headings "manner in which disease is produced" and "lesions produced" are used in discussing each of the various pathogenic micro-organisms, but much of the discussion under them is concerned primarily with the clinical course of the disease. In many cases the manner in which disease is produced is unknown and the author offers a single explanation as factual. There are several inaccuracies; for example, on page 296 Vibrion septique is listed as a synonym for Clostridium sporogenes. On page 299 under the prophylaxis of botulism the statement is made "hence vegetables are liable to be contaminated—especially when grown in manured soil." For practitioners who depend on this textbook for information there is much to be desired. The medical student must rely on lectures to supply the missing gaps in information.

Functional Pathology. By Leopold Lichtwitz, M.D., Chief of the Medical Division of the Montefiore Hospital, New York. Cloth. Price, $8.75. Pp. 567, with 157 illustrations. New York: Grune & Stratton, Incorporated, 1941.

The book deals with certain aspects of functional pathology with penetrating detail but cannot qualify as a comprehensive textbook of functional pathology. It reflects only the interest and personal experience of the author. Were this book entitled "Studies in Functional Pathology" it would occasion definite pleasant surprises rather than general disappointment. Despite this observation, the reviewer feels that this book would enrich the library of physicians searching for the mechanism of obscure functional changes. It emphasizes a point of view at the expense of factual observations—hence the preponderance of references to the earlier work in physiology and pathology. The chapters on the mechanism of blood diseases, hypertension and water metabolism are particularly well presented. The collection of photographs and arrangements of charts in themselves will easily compensate an interested purchaser.

To the credit of the author it is readily apparent that the discussions center about subjects of interest to him personally rather than attempt to cover an expansive field, and one fails to find the hackneyed expressions and errors that are usually carried over from one textbook to another. The book therefore is stimulating and thought provoking regardless of whether or not one can agree altogether with the author. The workmanship in printing, paper and binding is superb. Contrary to one's expectations the author reveals himself as an English stylist, and it is difficult to find any chapter in which the expressions appear either stilted or labored. It is hoped that this book will serve as a precursor to coming editions, with more emphasis being placed on the more recent physiologic advances and pathologic concepts developed in laboratories by men better known to the American reader.

Synopsis of Materia Medica, Toxicology, and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D. Second edition. Fabrikoid. Price, $5.75. Pp. 695, with 45 illustrations. St. Louis: C. V. Mosby Company, 1942.

The first edition of this book, which has been written for students and practitioners of medicine, was reviewed in these pages a little over a year ago and its possible usefulness described by the statements "It is inclusive, up to date, sufficiently exhaustive for ordinary textbook purposes and extremely readable. Many of Jackson's fine tracings and colored diagrams are borrowed to enrich its pages. The bibliographic references are numerous and evince the author's wide acquaintance with the literature of his subject." While there has been no radical change in the plan of the second edition, the author has brought the information up to date and has removed a number of criticisms directed toward the first edition. The author's cognizance of late developments is attested by reference to U. S. P. XII, N. F. VII, heparin, "coumarin compound," gramicidin, tyrocidine, penicillin, pectin, blood and blood substitutes and the newer sulfonamides. This edition merits the popularity accorded the first.

Physiological Psychology. By S. R. Hathaway. The Century Psychology Series, Richard M. Elliott, Editor. Cloth. Price, $2.75. Pp. 335, with 44 illustrations. New York & London: D. Appleton-Century Company, Inc., 1942.

Many physicians and psychiatrists are not aware of the fact that the training of modern psychologists involves a thorough knowledge of the form and function of the central nervous system. Several books have been published on this subject, which, though brief, nevertheless serve as accurate, complete and competent introductions into neural anatomy and physiology. Although the title of the present book is "Physiological Psychology," about an eighth of it consists of simple and accurate descriptions of nerves and of the anatomic features of the nervous system, including the microscopic and gross findings. In addition to the elementary neural anatomy and physiology there are excellent chapters adequately discussing the basic physiologic background of the emotions, speech, intelligence, consciousness, sleep and motivation. For a simple, competent and useful survey of the mechanics of behavior, this book should serve its purpose. It has a short but not unsatisfactory selected bibliography and a competent index. There is no annotation in the text to show whence the facts have been culled. The volume contains several line drawings showing nervous structure and graphs showing quantitative features of psychologic traits.

Foundations for a Science of Personality. By Andras Angyal, M.D., Ph.D., Resident Director of Research Worcester State Hospital, Worcester, Mass. Cloth. Price, $2.25. Pp. 398, with 12 illustrations. New York: Commonwealth Fund: London: Oxford University Press, 1941.

There are innumerable theories of mental functions. Some, as the gestalt theory, have to do with the integration of various thought processes; others, such as psychobiology, have to do with the integration of various fields of knowledge about the mind. Dr. Angyal makes an attempt to fuse as many of these as possible into a single, scientific whole. Unfortunately his

approach to the subject is rather more philosophic than scientific. He considers that the organism in its environment is a unitary process, not a fusion of environmental processes and basic internal processes, as some of the older psychologists have postulated. He emphasizes the fact that the organism tends to draw as much out of the environment as possible into the personality and to project the personality on to the life about it. Most of the ideas in the book are not new. Some psychiatrists may be unaware of the holistic approach to the field, but it is a matter of common knowledge among psychologists that such an approach is in existence, although it is not accepted by all psychologists. There is much neologistic writing, and the author does not hesitate to use foreign words to express a concept if necessary. The whole picture he presents is a complex one requiring a great deal of background. He makes no contribution to diagnosing and treating patients, although the book undoubtedly would aid a psychiatrist doing such work in being critical of himself in applying certain theories to his thinking. It is a work such as this that leads psychiatrists into the stratosphere of semantics rather than to the terra firma of natural science.

Workmen's Compensation and the Physician: A Manual for the Use of General Practitioners and Insurance Carriers. By Henry H. Jordan, M.D., Associate Orthopaedic Surgeon, Lenox Hill Hospital, New York, N. Y. With a discussion of Traumatic Neuroses. By Paul H. Hoch, M.D. Cloth. Price, $3. Pp. 180. New York, Toronto & London: Oxford University Press, 1941.

The author presents this manual in the hope that it will serve as a guide for the general practitioner of medicine and the insurance carrier in the handling of injuries coming within the purview of workmen's compensation laws. He discusses the relationship of the general practitioner to workmen's compensation cases, devoting attention to methods of examination of industrial injuries and their treatment, explores the difficult question of causal relationships between disability and injury, including aggravation of preexisting conditions, and includes a chapter on expert opinion and disability evaluation. The concluding chapters present the relationship of physical therapy to industrial injuries, the use of orthopedic appliances and the part that traumatic neuroses assume in the general picture of this particular field of medical practice. The manual embodies material previously published in the *Archives of Physical Therapy*, the *Medical Record* and *Industrial Medicine*.

Handbook of Hygiene for Students and Practitioners of Medicine. By Joseph W. Bigger, M.D., Sc.D., F.R.C.P.I., Professor of Bacteriology and Preventive Medicine, University of Dublin, Dublin. Second edition. Cloth. Price, $4.50. Pp. 414. Baltimore: William Wood & Company, 1941.

This edition, like the first, is intended for medical students. The material is presented in a way that might be useful to the physician in general practice, however, and to this end a new chapter on the relation of the physician to the health department has been added. In the brief confines of four hundred pages the author has covered all the communicable diseases, together with a chapter on such systemic diseases as cancer, diabetes, heart disease and rheumatism. Then follow chapters on insects and parasitic worms, disinfection, water, food, air and ventilation, waste disposal and sewerage, housing, occupational hygiene, maternity and infant hygiene and personal hygiene. The range is so great that only brief attention can be given each item. The information is succinct and accurate, however, and the book should prove useful for the purpose intended. Statistics that are given are mostly for England and Wales. The chapter on chemical warfare, included in the first edition, has been omitted.

Repairmen Will Get You If You Don't Watch Out. By Roger William Riis and John Patric. Cloth. Price, $1.95. Pp. 271. Garden City, New York: Doubleday, Doran & Co., Inc., 1942.

This book, dedicated to the *Reader's Digest*, is essentially a reprint of the essays published in that periodical dealing with experiences of actual observers in getting motor cars, radios, watches, typewriters, vacuum cleaners and electric irons repaired. Additional chapters provide some personal letters sent to the authors by readers and also by members of the trades concerned. Apparently repairmen generally resented the technics of investigation, but some garages took advantage of the series of articles to indicate that every one does better using his home garage and home radio repairman than he does calling on strangers. A special chapter on doctors and lawyers refers to the investigation of optometry carried on by Riis some years ago and then points out that professional services are quite different from the services of repairmen. The author is convinced that by and large doctors do as well as they can, as idealistically as they can, with much more conscience "than our friends in the garages." This book will be of interest to every one who has ever come in contact with the cost of repairs of ordinary devices—and that means everybody.

Health in Schools. Twentieth Yearbook. Cloth. Price, $2. Pp. 544, with illustrations. Washington, D. C.: American Association of School Administrators, A Department of the National Education Association of the United States, 1942.

The special Commission on Health in Schools of the American Association of School Administrators offers in this year book much material that is a guide to standard practice. The preface indicates that the volume is not designed as a piece of propaganda in relationship to social action or extension of the Social Security Act. Health has long been a name of education. This book coordinates and standardizes procedures toward the realization of this aim. There are sections on individual health, mental hygiene, communicable disease, school environment, personnel and legislative problems. The various appendixes provide a mass of important bibliographic and other reference material. The year book concludes with a list of members and some excellent indexes.

War, Politics and Emotion. By Geoffrey Bourne. With an introduction by Dorothy Canfield Fisher. Cloth. Price, $1.25. Pp. 110. New York: Liveright Publishing Corporation, 1941.

In her introduction to this book Dorothy Canfield Fisher says that "We can hardly have too many good, clear, readable statements of the reasons, political, economic, emotional and glandular, why human beings continue to commit the imbecile crime of colliding with each other in war." The author's work is in every sense of the word an appeal to reason. He is convinced that our knowledge of science has outrun our ability to use it intelligently. Dr. Bourne feels that the predominance of aged leaders over youthful ones is one of the chief difficulties of the democracies. In his chapter on democracy, however, he recognizes that it is the highest form of government, requiring nevertheless a high standard of intelligence, education and civilization to make it fully effective. The conclusion is that the dominance of men over reason is the cause of all political evils and that such dominance cannot be overcome until politics becomes a science and politicians become qualified in that science.

Handbook of Scientific and Technical Societies and Institutions of the United States and Canada. United States Section Compiled for the National Research Council of the United States by Callie Hull and Mildred Paddock. Canadian Section Compiled for the National Research Council of Canada by S. J. Cook and P. A. Howard. Bulletin of the National Research Council Number 106. Fourth edition. Cloth. Price, $4. Pp. 389. Washington, D. C.: National Research Council, National Academy of Sciences, 1942.

A total of 1,269 organizations of the United States and its dependencies is included in this book as well as 143 organizations for Canada. Information under the name of each organization includes the name, address, officers, history, object, membership, meetings and serial publications. Such a directory is obviously invaluable to every one in public work in the scientific field. The National Research Council renders a great service by the development and publication of this book.

Questions in Laboratory Methods. By R. B. H. Gradwohl, M.D., Sc.D., Director, The Gradwohl School of Laboratory Technique, Saint Louis, Mo. Second edition. Paper. Price, $2.50. Pp. 71. Saint Louis: Gradwohl School of Laboratory Technique, 1942.

This is a quiz compend on the work of the medical laboratory correlated with the textbook of the same author on "Clinical Laboratory Methods and Diagnosis." Unless one has the latter book, the quiz compend does little but inform the practicing physician of the fact that he knows, after all, very little indeed about the specialty known as clinical pathology. There are many hundreds of questions which will tantalize the mind if one cares to test oneself.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

OPERATING PHYSICIANS' CARS DURING BLACKOUTS

To the Editor:—I should like to inquire what a physician would do if required to go out by car during either a practice or a real blackout. Is there equipment for making car lights invisible enough for such purposes? Several of us are interested.

Evelyn G. McLane, M.D., Jackson, Minn.

ANSWER.—If physicians are assigned by local defense councils as members of a first aid corps, they may drive during air raids or blackouts if they are in critical areas and their cars are equipped with the Army blackout lighting devices. These devices for emergency and essential vehicles may be procured, after the War Production Board has released sufficient materials for their manufacture, through state or local civilian defense councils. The Office of Civilian Defense has also requested the National Bureau of Standards to investigate the possibility of designing a mask which will be used on cars operating during blackouts. The Bureau of Standards is progressing with the matter and it is hoped that these masks will soon be available to any one who wishes to purchase them. In some areas, physicians' cars are marked with a special device developed by the Emergency Medical Service in the Office of Civilian Defense.

TRAUMA PRECIPITATING RHEUMATIC FEVER

To the Editor:—In old textbooks one reads that "injuries not infrequently serve to excite rheumatism in the affected joints or in their immediate neighborhood" or "that a traumatism of the joints can directly change to true articular rheumatism has been observed especially in children." Could you give some information about the clinical course of such cases—whether they differ much from the original rheumatic polyarthritis in their duration and severity (as shown by the erythrocyte sedimentation test), frequent relapses and heart involvement? How does the previous trauma affect the healing of the joints? Does it often take the course of chronic rheumatoid arthritis? Bendet Nelson, M.D., New York.

ANSWER.—Acute attacks of rheumatic fever are precipitated most commonly by acute infections of the upper part of the respiratory tract but may be provoked occasionally by trauma. Thus trauma was regarded as a provocative factor in 5 per cent of almost 800 cases of acute rheumatic fever (Seitz, 1899). Others who have discussed this problem have been Julliard (1906), Gerbaut and Andermann (1934) and Edstrom (1936). Swift and Cohn (1938), discussing the influence of physiologic trauma on the localization and persistence of rheumatic lesions, noted that, while the arthritis of rheumatic fever usually occurs first in the knees and ankles, it more often localizes early in the hands and arms of needleworkers and laundresses. Also noted by Swift and Cohn were cases in which physical trauma in a certain joint preceded the "primary focalization" of rheumatic inflammation in that region; in other cases a bruise apparently induced a relapse in one joint, which was followed later by migratory polyarthritis. Subcutaneous nodules, the prototypes of the proliferative stage of the rheumatic inflammation, occur most frequently in regions subjected to physiologic stress, such as tendons and tendon sheaths as they pass over joints or over structures especially subjected to pressure (for example, the olecranon and the patella). Those valves (mitral and aortic) which are subjected to the most intense physiologic trauma are the ones in which scarring and deformity most frequently occur.

Two series of cases have been reported recently in which trauma initiated exacerbations of rheumatic fever. One series of 12 cases was reported from Australia (*M. J. Australia* **1**: 482 [April 6] 1940). In most of these cases there developed soon after trauma an effusion of varying degree which was considered and treated at first as representing traumatic synovitis. But within a few hours to a few days symptoms of acute migratory polyarticular rheumatism developed with or without carditis or erythema marginatum. The time intervals between the trauma and the rheumatic attack varied from four hours to four days but were generally twenty-four to forty-eight hours in duration. In 6 of these 12 cases the attack precipitated by the trauma was the initial rheumatic attack with no previous rheumatic history.

The second series, reported by Glazebrook and Thomson (*Edinburgh M. J.* **48**:674 [Oct.] 1941), comprised 11 cases out of a series of 115 cases of rheumatic fever studied in one institution. Within two to twelve days after various types of injury (sometimes rather trivial) acute rheumatic arthritis affected first the traumatized, later nontraumatized, joints. In some but not all the cases there was also a history of recent tonsillitis or sore throat.

These reports indicate that the rheumatic attacks initiated by trauma resemble in the main those initiated by respiratory infections; that is, acute febrile migratory polyarthritis with no tendency to the production of chronic rheumatoid arthritis in any joint.

MUSCULAR CRAMPS ON EXERTION AND CAISSON DISEASE

To the Editor:—Information is requested concerning the end results of caisson disease, "bends." A white man aged 29 worked for three years, 1935-1938, under compressed air as a tunnel miner, during which time he had three or four attacks of "bends" of the arms and legs, lasting eight to ten hours and consisting of severe cramping pains of his muscles, which he "walked off." Since then he had had occasional severe cramps on exercise and during the past three or four months had noticed that he walked with a wide base and an extensor thrust and became so tired that he could walk only about a quarter of a mile without the necessity of resting. There was no apparent atrophy or hypertrophy of his muscles, he could do common exercises involving the legs without difficulty, and neurologic examination was within normal limits including the Romberg test. Laboratory examination of his blood and spinal fluid yielded normal findings and a negative Wassermann reaction. Could this symptomatology without gross evidence of physical defect be due to old muscle infarction or the "bends"? M.D., Delaware.

ANSWER.—The late manifestations of caisson disease are associated with injury to the spinal cord, resulting in myelitis, monoplegia or paraplegia. The signs are those of spastic paralysis with slight sensory symptoms and bladder dysfunction. This condition is rarely found, for a large number of patients affected with paraplegia in the acute stage recover when treated by decompression. On the other hand, muscle pains ("bends"), air hunger ("chokes"), Ménière's syndrome ("staggers") and the cutaneous symptom ("itch") are not seen, as in this case, years after the acute severe episodes, even if there have been repeated attacks. In this instance, moreover, the "bends" were slight and were "walked off." Silberstern found no cases of joint or limb pains, with enduring disablement, in 180 cases examined by him. Other writers also fail to describe "bends" as a residual condition in caisson disease.

It would seem, therefore, that the occasional severe cramps on exercise, the gait disturbance and the fatigue in this case could not be attributed justifiably to the patient's previous occupation. The period of comparative freedom from symptoms followed by exacerbations in the last few months is also suggestive of some other causation, resulting in a progressive disease.

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PROCAINE HYDROCHLORIDE WITH AND WITHOUT EPINEPHRINE

To the Editor:—I should like some information on local anesthesia in dentistry. I have great difficulty in persuading dental surgeons to inject procaine hydrochloride only. They insist on including a little epinephrine. I have no objection to this, except in the presence of heart disease, especially with hypertensive coronary patients who absolutely require dental extractions or other dental work requiring local anesthesia. Why isn't plain procaine hydrochloride just as serviceable for extractions requiring short anesthesia? Of course, I realize that the addition of epinephrine prolongs anesthesia, or, at least, I understand that it does. Cannot one get just as good anesthesia by using procaine hydrochloride alone? If not, what is the physiologic or pharmacologic reason? Should not epinephrine be avoided, even in small amounts, when dealing with the anginal syndrome? M.D., Texas.

ANSWER.—A local anesthetic is usually combined with epinephrine in dentistry for the purpose of producing a dry field. Procaine hydrochloride will produce just as good anesthesia without epinephrine as with it but does not last quite as long. Epinephrine should be avoided even in small amounts when dealing with the anginal syndrome. The use of epinephrine with the local anesthetic by dentists has become almost routine with many of them, and it is not easy to persuade them to give it up even in the cases in which the physician feels that it would be best if it was omitted. However, there is an increasing number of exodontists who are conscious of the disadvantages of the use of epinephrine and they are omitting it in certain cases or are using cobefrin.

NUMBNESS AND TINGLING OF ARMS

To the Editor:—A man aged 37, in good health otherwise, has noticed a progressive course of symptoms involving the upper extremities. About one year ago, after prolonged cranking of an outboard motor, he noted soreness and numbness of the right arm. This has persisted and for the past three months has involved also the left arm. An average day's experience is as follows: When he awakens in the morning his hands are swollen and stiff. The hands feel numb. The swelling and stiffness recede, but at no time is there strength enough to hold a hammer in the right hand. The strength in the left is unimpaired. On retiring, the right promptly goes to "sleep." He may awaken with a sensation like a toothache in both arms and hands, especially the right. The symptoms are more aggravated below the elbows. When seen in the evening there are no objective findings. The color is good in all positions. There is no interosseous atrophy and no alteration of reflexes. He is employed as a foreman in the sheet metal division of an automobile radiator plant. There is no lead used on his floor. Paint fumes exist and a process of rustproofing called "bonderizing" has been essentially in his charge for the past two years. He has a sister who responds to cat dandruff with bronchial asthma, and a niece who is a cretin dwarf. His basal metabolism rate is within normal limits. The blood picture is normal, and the red blood cells are not stippled. There are no evidences of lead poisoning. What etiologic consideration must be given in a case of this nature?

H. C. Miller, M.D., Racine, Wis.

ANSWER.—The case history suggests either an extramedullary, intramedullary or spinal column lesion in the cervical spinal region. The extramedullary or intramedullary areas may have a tumor or a degenerative or inflammatory disease. The cervical spinal column may be the seat of an arthritis, a tumor, a mechanical defect like a ruptured nucleus pulposus or a cervical rib. Certainly a thorough neurologic examination is indicated. Following this, anteroposterior and lateral roentgenograms of the cervical spine should be made. If no conclusive information is derived from these examinations the patient should have an accurate manometric study made of his spinal fluid with a total protein determination, a Wassermann test and a colloidal gold test. One must not lose sight of the fact that the patient might have an arthritis in the wrists, elbows or shoulders. From the history given, the latter conclusion appears unlikely.

SPHYGMOMANOMETER AND PAIN SENSITIVITY TEST

To the Editor:—Can you give me information regarding one of the pain sensitivity tests? I recently heard of a technic of placing a small sharp object beneath the pressure cuff of a blood pressure manometer and inflating the cuff until the patient could no longer bear the pain.

M.D., Virginia.

ANSWER.—Hollander (*J. Lab. & Clin. Med.* **24**:537 [Feb.] 1939) has described a method for the measurement of sensitivity to pain using the simple technic of attaching a piece of roughened metal (such as is used in food graters) to the surface of the blood pressure cuff. Without warning to the patient the cuff is inflated slowly and the pressure reading taken at the moment the patient reveals pain by a verbal protest or wincing. By this means Hollander was able to place patients in three groups: the hypersensitive group who responded below 110 mm. of mercury pressure, the hyposensitive group who showed no sensitivity to pain up to 260 mm. pressure, and the normally sensitive group who responded between 110 and 260 mm. pressure. The technic has been applied by Wilder (*Proc. Staff Meet., Mayo Clin.* **15**:551 [Aug. 28] 1940) in an attempt to distinguish pain due to organic disease from that having a functional cause. While the difference is small, on the average patients with functional disease had a significantly greater sensitivity to pain. He also found that the pain threshold was much higher for men than for women.

IRRITATION OF THE SKIN FROM ANESTHETIC OR MASK

To the Editor:—A woman received an ether burn to her face during the course of an anesthesia given for an appendectomy. The burns were of second degree nature and consisted of two areas about the size of a quarter (24 mm.) on her chin and left cheek. The healed burns have left two erythematous areas which over a period of four months have slowly decreased in size. Since the patient is 19 years of age, she is quite sensitive about her appearance. What will the ultimate prognosis as to the clearing of her skin be? Is there any treatment recommended?

M.D., Massachusetts.

ANSWER.—Ether vapor rarely irritates the skin of a normal person. However, Duke has reported a case (*J. Allergy* **3**:495 [July] 1932) exhibiting an allergic response to ether vapor and hypersensitivity when a single drop of liquid ether was placed in contact with the skin. If liquid ether comes in contact with the skin and is prevented from evaporating by some covering, irritation frequently results. Lyons has reported a case of skin irritation of this sort caused by gauze wet with vinyl ether which was held in contact with the skin of the face (THE JOURNAL, Oct. 1, 1938, p. 1284).

The use of anesthetic masks with a rubber cushion has resulted in injuries of the character described in the question. Such injuries may occur in two ways: First, undue pressure of the cushion may be exerted on the moist skin of the face by either holding or strapping the mask in place too tightly or from the weight of the head resting in the mask when the patient is in the prone position. If the patient is sensitive to rubber or its constituents, irritation of the skin or a "burn" is more likely to result (Niles, H. D.: Dermatitis Due to Rubber Bunion Protector, THE JOURNAL, Sept. 12, 1931, p. 778). Second, rubber may absorb irritant substances and retain them in spite of careful washing. Herwick and Treweek have described a skin injury, of the order referred to in the query, caused by saponated solution of cresol used in sterilizing (*ibid.*, Feb. 11, 1933, p. 407). The face mask had been washed in soap suds and boiled before using and yet the irritant remained in the rubber.

No treatment is likely to hasten the healing process of the injury described. The blemishes referred to as "decreasing in size" will probably disappear completely. Meantime the unsightliness may be mitigated by proper cosmetic aids without delaying the restoration of normal skin.

RECURRENT DISLOCATION OF THE PATELLA

To the Editor:—I should like to know the most likely cause of dislocation of the patella (both knees) in a boy of 14 on mild exercise.

George K. Herzog, M.D., San Francisco.

ANSWER.—Recurrent dislocation of both patellas is congenital in origin. The first dislocation may not occur until the patient reaches the age of 10 to 14 years. Occasionally, however, the patellas are dislocated from or before birth. Examination of patients with recurrent dislocation of the patellas will reveal a moderate to marked knock-knee deformity, underdevelopment of the anterior patellar ridge on the lateral condyle of the femur, and underdevelopment of the vastus medius muscle. All three of these findings may be factors in producing the instability of the patella. Which of these three factors is cause and which effect has never been definitely determined. If the vastus lateralis is much stronger than is the vastus medius, contraction of the quadriceps muscle may tend to pull the patella over on to the lateral side of the knee joint. This tendency to dislocate is much increased by the presence of a knock-knee deformity and underdevelopment of the patellar ridge on the lateral condyle of the femur.

Congenital absence or underdevelopment of the medial portion of the quadriceps muscle is probably the primary factor leading to the gradual development of knock-knee. The condition can be treated successfully by means of surgery. The insertion of the infrapatellar ligament, or the lateral half of this insertion together with a considerable portion of the bone to which it is attached, should be transplanted medially and downward on the tibia in order to straighten the line of pull between the origin and the insertion of this muscle. This procedure will prevent further recurrences and permit normal function of the knee.

HISTAMINE DIPHOSPHATE FOR PERIODIC HEADACHES

To the Editor:—Can you tell me for what length of time histamine diphosphate is to be used in the treatment of cephalgia and migraine? I have a patient whom I started on an intravenous dose of 2.75 mg. for two days and then 0.275 mg. twice weekly for treatment of a persistent cephalgia apparently of a migrainous or an allergic type. She has improved considerably but still has occasional headaches, and I don't know whether to continue or discontinue treatment. She has been under treatment for eight weeks.

John J. Shea, M.D., Coldwater, Ohio.

ANSWER.—Histamine diphosphate (0.275 mg. per cubic centimeter) can be given in appropriate amounts subcutaneously for an indefinite period, depending on how well a given patient responds to this type of therapy. As to whether a maintenance dose of this drug is given twice weekly or at more frequent intervals depends entirely on the clinical response of the patient. Some patients require two injections weekly, an occasional patient may require even more frequent injections to prevent recurrence of the headaches, and others do not require a maintenance dose at all. No ironclad rule can be stated which will cover all such problems. The average patient who has a vasodilating headache of the histaminic cephalgia type and who responds to this type of therapy usually will require a maintenance dose of histamine twice a week in order to prevent a recurrence of the attacks. Each injection should be below the point of producing any systemic reaction whatever. In view of

the fact that the patient in question seems to have responded well to histamine therapy, it might be well to give an injection every other day instead of twice a week to determine the response to this schedule.

There seems to be a great deal of confusion regarding the type of headache for which histamine therapy is useful. In an article entitled "The Use of Histamine in the Treatment of Specific Types of Headaches," Horton says that histamine "desensitization" is specific for a type of headache which has been described as histaminic cephalgia. This work has been confirmed by Baker at Johns Hopkins University Medical School (The Treatment of Periodic Headache by Injections of Histamine, *Tr. Am. A. Physicians* **55**:294, 1940).

In the treatment of periodic headache, one must differentiate clearly between histaminic cephalgia and migraine. Uniformly good results follow histamine therapy when applied to the histaminic cephalgia syndrome, but the authors mentioned do not recommend its use in the treatment of ordinary migraine.

POSSIBLE HYPOPHYSIAL ADENOMA

To the Editor:—**A white woman aged 21, single, has had vomiting for one year, headaches for nine months, weakness for three months and vertigo for three months. The vomiting occurs most commonly right after eating and is worse during any excitement or nervous tension. The headaches are frontal and occipital and more intense in the morning. All her complaints have been worse for three months, and two months ago she was forced to give up her work as a secretary. Her menses began at 15, occur at twenty-eight day intervals and last five days. They were somewhat scanty until three months ago, when they increased to what would be normal. For six months she has had slight dyspnea on one flight of stairs but no edema. She has fainted several times in the past six months but also fainted several times during the past three years. She is quite tall, being 5 feet 11½ inches (181 cm.), and she believes that she is still growing. Her three grown brothers are 6 feet 1 inch (185 cm.), 6 feet ¼ inch (183 cm.) and 5 feet 8 inches (173 cm.). Her father is 5 feet 11 inches (180 cm.) and her mother is 5 feet 7 inches (170 cm.). Her present weight is 126 pounds (57 Kg.); her normal weight is 130 pounds (59 Kg.). She lost 10 pounds (4.5 Kg.) six months ago but lately has been gaining. Physical examination is normal except for prominence of the eyeballs, coated tongue and blood pressure 108 systolic and 70 diastolic. Neurologic examination is negative. Her span is 72½ inches, upper measurement 35 inches, lower measurement 36½ inches. Her fingers and jaw are not above normal size. The urine is normal. The red blood cell count is 4,620,000, the white blood cell count 9,100, with polymorphonuclears 49 per cent, lymphocytes 35 per cent, monocytes 9 per cent, eosinophils 5 per cent and basophils 2 per cent. Barium sulfate roentgenograms of the stomach were normal. Gastric analysis showed free hydrochloric acid 8 degrees, total acid 10 degrees. No occult blood was present and there was a large amount of mucus. Roentgenograms of the skull showed a thinning of the anterior and posterior clinoid processes, although the pituitary fossa measured only ½ inch. The visual fields are contracted, being 40 degrees at all points in both eyes. The contraction was greater on the temporal side of the left field but not on that of the right field. Testing was done with a 5 mm. test object at 33 cm. All colors were equally involved. The vision was 20/25 in each eye, corrected by glasses to 20/20. Is there sufficient evidence to diagnose this as a case of pituitary eosinophil adenoma with gigantism? Would roentgen therapy to the pituitary be advisable? Four injections of theelin, 10,000 units each at two day intervals, for the purpose of inhibiting pituitary gonadotropic secretion did not produce any change. Should this be carried further? Would spinal tap or encephalography be advisable?**

M.D., Indiana.

ANSWER.—Hypophysial adenomas of the eosinophilic type may cause hyperpituitarism, which produces gigantism before puberty and acromegaly after that period. In women one of the earliest symptoms may be the loss of the menses. The basal metabolic rate tends to be elevated, and glycosuria may be present. Other symptoms are bitemporal headaches, a bitemporal hemianopsia due to pressure of the tumor on the optic chiasm, and later optic atrophy. Roentgenologically the hypophysial adenomas present a typical "ballooned out" expansion of the sella turcica. From the description there does not seem to be enough evidence for the diagnosis of an eosinophilic adenoma. Careful neurologic and visual field examinations should be repeated at regular intervals, and the patient should be watched carefully. Dysfunction of the hypophysis may produce similar symptoms except for those of pressure due to an expanding tumor. In cases of hypophysial adenomas roentgen therapy may be followed by edema, and a visual field defect may be produced suddenly. It should be used without surgical removal of the tumor only under careful observation. It is not probable that the injections of theelin will benefit the patient. Artificially inhibiting pituitary functions will not inhibit the growth of an adenoma or decrease its size. A spinal puncture should be done only if one expects to find changes in the cerebrospinal fluid or in its pressure. Encephalography is a neurosurgical procedure, and its indication depends entirely on the neurologic findings. It affords little diagnostic help in tumors of the hypophysis.

DIET AND HAY FEVER

To the Editor:—**A patient who is a severe sufferer from hay fever and who has been willing to try everything he reads about in the lay press from pituitary extract to Coli Metabolin has heard of a treatment (evidently originating in New York) which is called the "No Milk-No Carbohydrate Diet." I have used some of these methods, at his suggestions, with misgivings, and have explained to him the danger of a severe cut in carbohydrates in his diet. I told him I would put him on a 1 to 1 ratio for a ketogenic diet but that if I was to restrict carbohydrates more than to a 1 to 2 carbohydrate fat ratio I would want some authority for doing so. Will you kindly acquaint me with any facts you know regarding this dietary treatment for hay fever?**

M.D., Illinois.

ANSWER.—The use of various diets in the treatment of hay fever and asthma, except such as eliminate allergenic foods, has not proved successful, despite reports to the contrary. Van Leeuwen advised a purine free diet, Adam insisted on avoidance of excessive carbohydrates, and Peshkin and Fineman in 1930 reported good results in asthmatic children from the use of the ketogenic diet. Alexander, however, tried the latter diet in adult asthma and found it of no value. All such diets contain, perforce, portions of an elimination diet, and any improvement may be due to the avoidance of an allergenic food. Osman urged a high carbohydrate diet in asthma, and clinically this advice is supported by the excellent results obtained by this diet plus extra amounts of dextrose.

Search of the literature does not reveal any authentic reports of good results from the dietary treatment of hay fever. It is true, however, that approximately 2 out of 3 patients with hay fever will give positive cutaneous reactions to certain foods or to other substances as well as to the pollens to which they are susceptible. If these other substances or foods are removed from the diet or vicinity, the results obtained by the injection method of treating hay fever are usually improved.

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GONADOTROPIC FACTORS OF ANTERIOR PITUITARY

To the Editor:—**The gonadotropic principles of the anterior pituitary are usually described as being (*a*) follicle stimulating and (*b*) luteinizing. Are these principles derived from the pituitary of male animals? Is there direct evidence that there are cyclic changes in the amounts of each principle produced in females, corresponding to the cycles of estrus? Do the two factors produce varying responses if injected into men?**

H. Clair Amstutz, M.D., Goshen, Ind.

ANSWER.—While there is still no absolute proof of the two distinct gonadotropic factors from the anterior pituitary, there is excellent evidence that this is so, and practically pure preparations of each have been isolated. Both the follicle stimulating and the luteinizing factors are present in the glands of both male and female animals, although the quantitative amounts may differ somewhat between the male and the female. The amounts of these principles also vary somewhat according to the ovarian cycle in the female, but it is most difficult to assay such changes quantitatively. The castrate female or male has a relative preponderance of the follicle stimulating hormone in the pituitary. In the male animal the follicle stimulating hormone acts on the spermatogenic elements of the tubules while the luteinizing hormone stimulates the interstitial cells to secrete androgen, which in turn acts on the secondary sex organs.

METHODS OF SCARLET FEVER IMMUNIZATION

To the Editor:—**I have avoided immunization with scarlet fever toxin because of the severity of the reactions. Is the ten dose method starting out with 150 skin test units and doubling the dose each time for ten doses as effective as the usual five dose method, and can reactions be minimized this way? The total number of units administered is slightly greater if the ten dose method is used, being 159,750 compared with 143,150 with the five dose method.**

Richard J. Steves, M.D., Menomonie, Wis.

ANSWER.—The ten dose method of immunization against scarlet fever described causes the patient more inconvenience and is not so effective, especially in duration of immunity, as the usual five dose method of immunization. Most unduly severe reactions during the course of immunization against scarlet fever result from deep subcutaneous or intramuscular injection of the toxin. It should be injected just under the skin, so that a visible subcutaneous lump results.